Environmental Assessment
September 2005

OLD HENRY ROAD – CRESTWOOD CONNECTOR
JEFFERSON AND OLDHAM COUNTIES, KENTUCKY

From the I-265/Old Henry Road Interchange to KY 22 in Crestwood

Item # 5.367.00

Submitted Pursuant to 42 USC 4332(C);
49 USC 303(C); 40 CFR 1502; 23 CFR 771

US DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
KENTUCKY TRANSPORTATION CABINET
DIVISION OF ENVIRONMENTAL ANALYSIS

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8/29/05
Date of Approval

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1.0 Purpose and Need

The purpose of this project is to provide a connection between the recently constructed I-265/Old Henry Road Interchange and KY 22, providing access to KY 329B, and KY 393. The existing two lane - KY 146 through Pewee Valley has poor roadway geometrics, numerous roadside obstacles and high traffic volumes which create unsafe travel conditions. The proposed project would enhance the existing roadway system by improving safety, reducing congestion, and preserving the community along the existing KY 146 corridor. In addition, the Old Henry Road Interchange has created tremendous development pressures in the Old Henry Road corridor. Safe and efficient access is needed within this development corridor. This new road will provide both an alternative route for individuals traveling to Crestwood and points east and offer improved accessibility within the project corridor.

The following items will be further defined to demonstrate the project need:

- System Linkage (Section 1.5)
- Safety/Accident Analysis (Section 1.6)
- Transportation Demand (Section 1.7)

1.1 Project Description and Setting

The proposed project area is located in eastern Jefferson and western Oldham counties in Kentucky (see *Location Map*, Figure 1). The proposed project is to construct a new route from the Old Henry Road interchange with I-265 to KY 22 in Crestwood. The overall length of the project is approximately 5.5 to 6.5 miles.

The Jefferson County portion of the project begins at the I-265 Interchange with Old Henry Road and generally stays within the existing Old Henry Road corridor until KY 362, Ash Avenue. The existing Old Henry Road corridor is rapidly changing from a rural to suburban land use. Since the completion of the Old Henry Road and I-265 interchange in the late 1990's, land development activities in the corridor have been extremely active.

The Oldham County portion of the project, from KY 362 to KY 22, contains a diverse mix of residential and agricultural land use and is much more rural in nature than the Jefferson County portion. The project area in Oldham County ranges from the Floyds Fork to the east to the existing subdivisions along the unnamed tributary of Floyds Fork to the west. The project will terminate on KY 22 east of the historic portion of the Waldeck Farm and the existing bridge over Curry's Fork on KY 22. The community of Floydsburg as well as a few existing subdivisions along Hawley Gibson Road and KY 1408 are included in the project area. The proposed project will provide an alternative route from the interstate to Pewee Valley and Crestwood allowing motorists to bypass the congested and geometrically deficient section of KY 146. The project will also serve traffic traveling from KY 22.

Figure 1 – Location Map

1.2 Existing Conditions

The proposed project corridor is currently serviced by several local roads, as shown in Figure 2. These roads include: Old Henry Rd., Bush Farm Rd, Old Henry Trail, Factory Lane, Reamers Rd., KY 362, Hawley Gibson Rd. Old Floydsburg Rd., and KY 1408. These existing roads have lane widths of approximately 9 to 11 feet in width consisting of little or no shoulders.

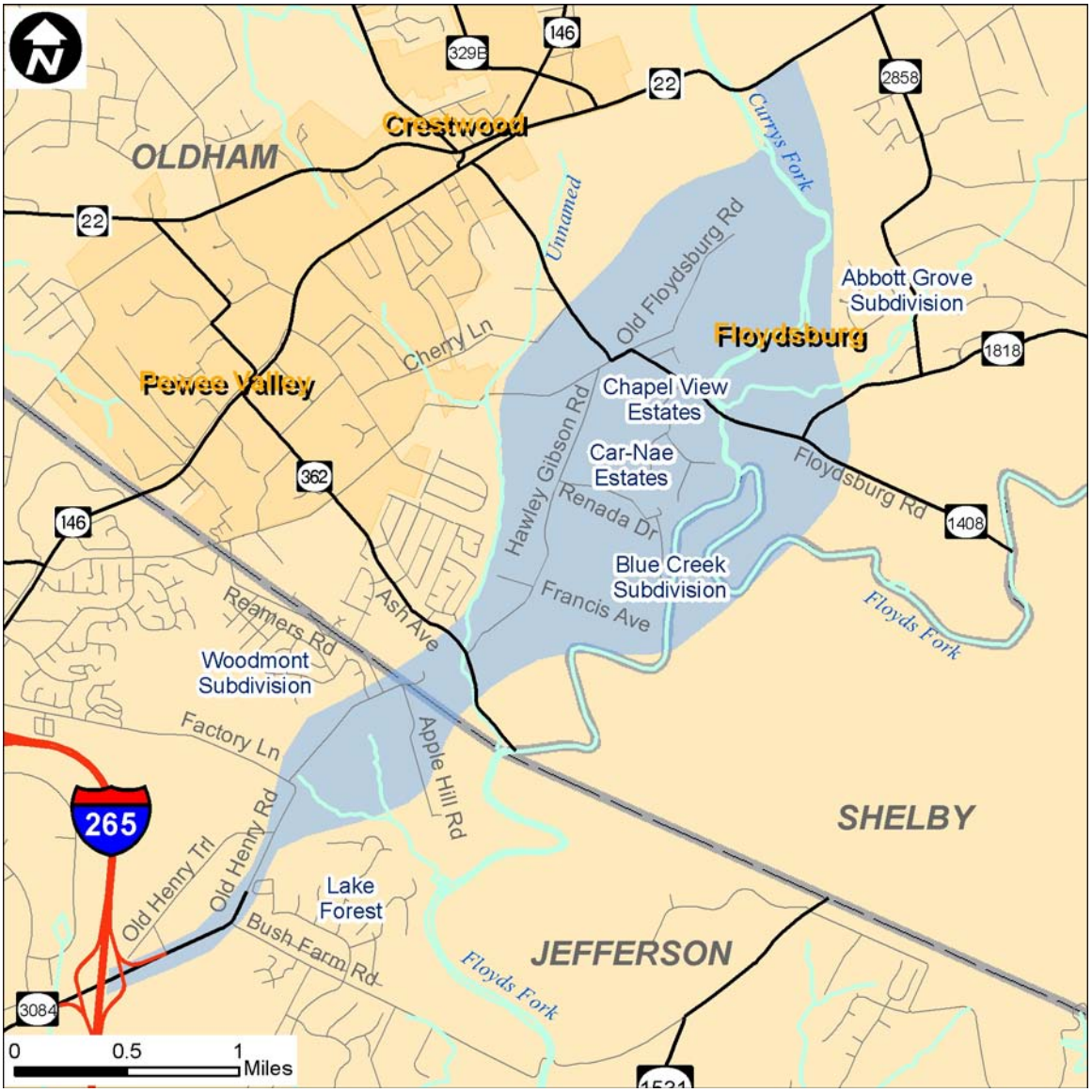

Figure 2 – Existing Conditions

Existing Old Henry Rd. from the I-265 Interchange to Bush Farm Road has been improved to a 4 lane facility with the I-265/ Old Henry Rd. Interchange project and adjacent development projects. The new Old Henry Road/I-265 interchange located on the western end of the project corridor has greatly increased the development pressures in the corridor. This corridor is only minutes away from the Interstate Highway System and the predominant existing land use is agricultural and/or open space that is rapidly converting to suburban land uses. Previous deterrents to development in the corridor were the lack of access and necessary infrastructure to support development. The interchange has opened up access to the area and sewer lines are currently being constructed along Old Henry Road. On the western side of the Old Henry Road interchange is a large industrial park (Anchorage Business Center) that is currently undergoing rapid development. Major shopping centers are only minutes away from the project corridor. Lake Forest Subdivision borders Old Henry Road near Bush Farm Road. Old Henry Crossing, a

mixed use development containing commercial, residential and office space, is currently under construction on the north side of Old Henry Road.

Beyond the Bush Farm Road intersection, Old Henry Road remains a two lane rural road with an approximate width of 20 feet with no shoulders. In addition to the narrow width, several horizontal and vertical geometric deficiencies also exist. Old Henry Road contains a 90 degree, or s-curve, at the terminus of Factory Lane. Preceding the s-curve, the roadway becomes Factory Lane and Old Henry Road connects into Factory Lane at an intersection approximately 200 feet from the S-curve. One new residential development has been planned along Old Henry Road between Old Henry Trail and Factory Lane. North of Factory Lane, Old Henry Road intersects with three new residential developments, several driveway accesses, Reamers Road and Apple Hill Road.

The main entrance to Woodmont subdivision is located along this section. Woodmont currently contains over 200 homes and with several more planned. Adjacent to the Woodmont entrance is the Fox Run development, a residential subdivision that has completed the first phase of construction and is currently planning the second phase. At the corner of Old Henry Rd. and Factory Lane, a condominium development is currently being constructed. A small private airport is located beside the condominium development along Old Henry Road. Apple Hill Road, located north of Woodmont, is a private road that services approximately 10 residents as well as two orchards. One orchard is located within the project area and backs up to Fox Run subdivision. Reamers Road is a county road that runs between KY 146 and Old Henry Road. Reamers Road provides access to the Village Green subdivision. Through the Village Green subdivision, access can be obtained to KY 362, Ash Avenue. This access provides as a cut through for residents in southeastern Oldham County to access Old Henry Road and the I-265 Interchange.

From the 1990 to 2000 census, residential development within the Old Henry Road corridor in Jefferson County increased by approximately 180%. The majority of the development within the corridor has occurred after 2000 and not included in the census. The *Old Henry Road Subarea* study, which encompassed an area of approximately 11 square miles surrounding the I-265 and Old Henry Road Interchange, estimated that the area will have a population of nearly 15,000 and more than 17,000 employees by the year 2020. The planned and existing residential and commercial developments within the Old Henry corridor will greatly increase traffic in this area. The additional traffic, combined with the inadequate geometry of the existing roadway, will contribute to increased congestion.

KY 362, Ash Avenue, crosses the project area in southern Oldham County. KY 362 connects to KY 146 and runs eastward to US 60 in Shelby County. The Kentucky State Women's Correctional Facility is located immediately outside the project area along KY 362. Ashbrook and Confederate Estates subdivisions are located near the project area along KY 362. These subdivisions back up to the tributary of Floyds Fork that crosses KY 362 near the Hawley Gibson Road intersection. The Ash Avenue Sewage Treatment plant is located on the west side of the tributary along KY 362. This plant services the residential developments in the area. The Red Penn Landfill is located on the east side of the KY 362 and Hawley Gibson Road intersection. Portions of the Red Penn Landfill are a designated Superfund site. The Superfund

site is located along the eastern portion of the landfill and has been capped. The soil for the area of the landfill that borders Hawley Gibson Road was removed and utilized in the cap. Due to existing developments, the tributary of Floyds Fork, and the location of the capped portion of the landfill, the project area near KY 362 is limited to the Hawley Gibson Road intersection area.

Hawley Gibson Road runs from KY 362 to Old Floydsburg Road in Floydsburg. Hawley Gibson Road is approximately 18 feet wide with no shoulders and numerous roadside obstacles such as trees. A Texas Gas Transmission line travels along the east side of Hawley Gibson Road. Frances Avenue is located off of Hawley Gibson Road immediately north of the KY 362 and services approximately 10 residents as well as an auto salvage yard. Blue Sky Farms is located on the eastern side of Hawley Gibson Road. Car-Nae Estates and Blue Creek Estates subdivisions are locate along Hawley Gibson Road to the east and borders Floyds Fork in the back of Blue Creek Estates.

The community of Floydsburg is located in the project area in the vicinity of the KY 1408 and Old Floydsburg Road intersection. KY 1408 connects to KY 146 in Crestwood and travels east to Shelby County. KY 1408 is approximately 18 to 20 feet wide with no shoulders through the project area. Through Floydsburg, KY 1408 travels through two back to back 90 degree curves. These curves create unsafe conditions and impede traffic. According to area residents, large trucks have extreme difficulty maneuvering through Floydsburg. The area adjacent to the curves is a historic area and contains Duncan Memorial Church and Cemetery. To the east of Floydsburg on KY 1408, a newer subdivision, Chapel View Estates, has developed and borders Floyds Fork. Past Chapel View Estates, KY 1818 terminates into KY 1408. Several new residential developments are occurring off of KY 1818 and Abbott Lane. Abbott Grove subdivision is located immediately outside the project area along Abbott Lane. The Waldeck Farm encompasses most of the project area north of KY 1408.

Floyd's Fork, Curry's Fork, and several tributaries are located within the project area in Oldham County. Floyds Fork winds through the eastern portion of the project area. Asher's Run and Curry's Fork flow into Floyds Fork near the KY 1408 and KY 1818 intersection. Curry's Fork runs along the northern portion of the project through the Waldeck Farm, before crossing KY 22 northeast of Crestwood. An unnamed tributary of Floyds Fork forms the western boundary of the project area before crossing KY 362 near the Hawley Gibson Road intersection.

The proposed roadway will connect to KY 22 approximately one mile north of the KY 329B intersection. KY 329B was recently constructed between KY 146 and KY 22 on the east side of Crestwood and contains a grade separated railroad underpass. This underpass is the only grade separation between KY 146 and KY 22 in Crestwood and Pewee Valley. The cities of Crestwood and Pewee Valley developed along the CSX (formally L&N) railroad line that bisects the cities. Both KY 146 and KY 22 run adjacent to the railroad tracks through the southeastern portion of Oldham County. I-71 can be accessed by KY 329B or KY 146.

To the east of the proposed Old Henry Road Connector with KY 22, KY 393 can be accessed in Centerfield. KY 393 contains also contains an interchange with I-71. The area around Centerfield has also experienced significant residential growth in recent years. KY 22 is

currently scheduled for major widening from Pryor Avenue in Crestwood east to KY 393. KY 393 is also scheduled for major widening/reconstruction from KY 22 to I-71.

KY 146 from the I-265 Interchange to Crestwood is a two lane urban minor arterial street. KY 146 has been widened to the existing developments near I-265 but primarily is a two-lane facility with 11 feet lanes and 2 feet earth shoulders. Near the I-265 Interchange, KY 146 is five lanes wide with 10 foot stabilized shoulders. Existing KY 146 is adjacent to the CSX railroad with only minor separation. Vehicles turning left on eastbound KY 146 must cross the railroad tracks. Several trains per day travel along the track and severely impact traffic on KY 146 by not allowing turning vehicles to turn across the tracks, blocking through traffic. Left turn lanes have been added in locations to allow for the movement of through traffic. However, in many locations along the route, opportunities to do this are limited. In addition to the CSX railroad, KY 146 through Pewee Valley is lined with utility poles and old large trees close to the roadway. These roadside obstacles, combined with the narrow lane widths and shoulders, create unsafe conditions along KY 146 through Pewee Valley and Crestwood.

1.3 Project History

This project has been part of the local planning process since 1992 when it was adapted as part of the Oldham County Comprehensive Plan. The Old Henry Road Interchange with I-265 has been a part of the Jefferson County planning efforts since at least the early 1980's. The I-265 Interchange with Old Henry Road was completed in 1998.

In 1998, an advanced planning study, *Advanced Planning Study – KY 329 From I-265 to Crestwood*, was completed for the KY 329 corridor that would extend from I-265/Old Henry Road Interchange to KY 22 at KY 329B in Crestwood. The purpose of the planning study was to analyze the existing conditions between I-265 and Crestwood and recommend improvements that would increase highway capacity and improve the Level of Service along the corridor. The planning study concluded that an improved transportation system between I-265 and Crestwood is needed to increase level of service, reduce accidents, improve access to I-265 and Crestwood for local residents, enhance economic development, and to reduce travel time for through traffic attempting to travel on KY 22 and KY 146. The planning study recommended the construction of a connector route from the I-265/Old Henry Road Interchange to KY 22 in Crestwood.

With the construction of the with I-265 Interchange at Old Henry Road and the future expansion of Old Henry Road to KY 22, both Jefferson County and Oldham County initiated subarea plans to study the proposed project area. The *Old Henry Road Subarea Plan* was adopted by the Jefferson County Fiscal Court in 2000 and incorporated into the *Louisville Urbanized Area Thoroughfare Plan*. Land development activities in the Jefferson County portion of the project have been extremely active since the adoption of the subarea plan.

Shortly after the Jefferson County plan, Oldham County initiated the *Old Henry Road Study* to address land use and community design issues associated with the Old Henry Road Corridor. In 2003, Oldham County completed the *Oldham County Major Thoroughfare Plan* as a result of recommendations from the 2002 Oldham County Comprehensive Plan Update. The purpose of the *Major Thoroughfare Plan* was to establish recommendations for highway improvements, alternative modes of transportation, and facility guidelines for the transportation system in

Oldham County. The Plan recommended that the Old Henry Road\Crestwood Connector from I-265 to KY 22 near Crestwood be a top priority for Oldham County. The widening of KY 22 from Pryor Avenue in Crestwood to KY 393 and the major widening/reconstruction of KY 393 from KY 22 to I-71 were also listed as top priorities. Another project identified in the Major Thoroughfare Plan is the addition of left turn lanes at on KY 146 at Ash Avenue. This project was given the lowest priority however for the safety and mitigation project recommendations.

1.4 Logical Termini/Independent Utility

The Old Henry Road\Crestwood Connector is considered to possess independent utility and have logical termini because it will complete a usable segment of roadway between a recently completed interstate interchange and KY 22. The proposed improvements within the project area will provide an integrated project that will satisfy the identified needs of congestion and safety mitigation, system linkage, and accommodation of local land development plans. The improvements proposed would supply these needs without restricting consideration of alternatives for future improvements to other surrounding roadways. The improvements would also provide an improved independent roadway segment that would be fully usable. These improvements would be a reasonable expenditure of road funds even if no additional improvements to surrounding roadways were made.

1.5 System Linkage

This project begins at the Old Henry Rd Interchange with I-265 and will terminate at KY 22 approximately one mile east of the KY 329 Bypass. By terminating near the KY 329 Bypass, the proposed route will link both KY 22 and KY 146. KY 329 Bypass was recently constructed to serve as a link between KY 146 and KY 22. It is currently the only non at-grade railway crossing between the two routes.

In addition to KY 329B, the proposed project will also provide access to KY 393 via KY 22. The area of Oldham County near KY 393 and Centerfield is a rapidly growing portion of the county. Both KY 329B and KY 393 provide access to I-71.

The proposed roadway will be classified as an urban minor arterial. It will connect KY 22, KY 146 and KY 329 Bypass with I-265 at the Old Henry Road interchange. KY 22 is a rural major collector, KY 146 is a rural minor arterial and KY 329 Bypass is an Urban Minor Arterial. This project will accommodate the traffic from the interstate system and the Louisville area desiring access to the KY 22 or KY 146 corridors east of Crestwood to bypass Pewee Valley and the western portion of Crestwood where the major roadways are narrow and congested.

Within the corridor, the proposed roadway will provide access to KY 393 and KY 1408. Both of these roadways currently terminate at KY 146 and travel into Shelby County. These roadways do not have direct access to I-265 through the Old Henry Road intersection. With development occurring along these roads towards Shelby County, the proposed project will provide better system linkage and alleviate congestion along these roadways.

The proposed project will enhance Modal Interrelationships within eastern Jefferson County and southeastern Oldham County by providing improved access to Interstate and National Highway

System Routes. The proposed roadway will also improve the existing bus route that currently travels on KY 146 by alleviating congestion and reducing travel times on the roadway.

1.6 Safety/Accident Analysis

Accident rates on KY 22 and KY 146 indicate high accident locations with several sections of roadway being critical and above the statewide average for similar facilities. The reasons for the high accident rates are high traffic volumes, poor roadway geometrics and numerous roadside obstacles. The proposed project will provide traffic relief for KY 146, and therefore improving safety along KY 146 and KY 22. The new roadway will be designed with accident prevention features such as a median to separate opposite flows of traffic and adequate clear zones to remove roadside obstacles. The safety features would result in reduced accident cost and improved road use savings.

A thorough analysis of the crash history along a particular roadway can provide invaluable insight into the need for and scope of improvements. Since the primary goal of the Crestwood Connector is to provide a connection between 1-265 and KY 22 near Crestwood, understanding the crash rates along existing connections between these facilities may suggest the need for such a new, improved corridor. In this case, that existing connection is KY 146 (LaGrange Road), and KY 22 within and east of Crestwood. The KYTC Division of Traffic provided three years of data for crashes occurring on these facilities between January 1, 2001 and December 31. 2003. Types of crashes include property damage only (PDO), injury crashes, and fatal crashes. Injury crashes include any crash where one or more individuals sustained an injury, and fatal crashes include crashes where at least one individual was killed. The results of the analysis are shown in Table 1.

Table 1: Crash Data for KY 146 and KY 22 (2001-2003)

County	Route	Begin MP	End MP	From	To	Current ADT	PDO Crashes	Injury Crashes	Fatal Crashes	All Crashes
Jefferson	KY 146	7.00	7.28	Nelson Miller Parkway	I-265	7,780	5	11	0	16
Jefferson	KY 146	7.28	8.25	I-265	KY 1447 (Westport Rd)	18,200	30	11	0	41
Jefferson	KY 146	8.25	8.83	KY 1447 (Westport Rd)	Oldham County Line	14,000	13	12	0	25
Oldham	KY 146	0.00	0.63	Jefferson County Line	KY 362 in Peewee Valley	14,000	34	7	0	41
Oldham	KY 146	0.63	2.15	KY 362 in Peewee Valley	KY 1408	14,100	64	12	0	76
Oldham	KY 146	2.15	2.36	KY 1408	KY 22 East Junction	11,000	11	1	0	12
Oldham	KY 22	3.54	3.93	KY 146	329B	9,480	20	8	0	28
Oldham	KY 22	3.93	5.32	329B	KY 2858 (Abbott Lane)	10,000	55	21	0	76
						TOTAL	**232**	**83**	**0**	**315**

A total of 315 crashes occurred along the relevant segments of KY 146 and KY 22 during the three year period. Of these crashes, 82 (26%) occurred on KY 146 in Jefferson County, 129

(41%) occurred on KY 146 in Oldham County, and 104 (33%) occurred on KY 22 within and east of Crestwood in Oldham County. Overall, 83 of the 315 crashes (26.3%) were injury crashes, with KY 146 in Jefferson County experiencing the greatest number of injury crashes (34, or 41.5%). KY 146 in Oldham County saw 20 injury crashes (15.5%) and KY 22 had 29 injury crashes (27.9%). With the exception of the Oldham County section of KY 146, these percentages are higher than the injury crash percentages for all roadways in both Jefferson and Oldham Counties (23.4% and 24.3%, respectively)[1]. No fatalities were reported during the three-year period.

Crash rates were calculated based on the number of crashes per 100 million vehicle-miles (HMVM) of travel. To compare the crash rates along KY 146 and KY 22 to similar roads across the state, Critical Rate Factors (CRF) were calculated. The CRF is the ratio of the actual crash rate to the critical rate (CR). The critical rate is the maximum crash rate for which it can be said crashes are occurring at random. A CRF greater than 1.0 indicates that conditions exist that contribute to the tendency for crashes to occur, and less than 1.0 indicates that crashes occur at random. The calculation for the critical crash rate is performed as follows:

$$RC = Ca + K * (sqrt(Ca/M) + 1/(2M)$$

Where:
Ca = Average crash rate
K = constant; 2.576 for 99.5% confidence
M = exposure (100 million vehicle-miles, or HMVM)

The average crash rate is a function of facility type, and the average for an urban, two-lane roadway is 266 crashes per 100 million vehicle-miles of travel.[1] Table 2 presents the results of the crash rate calculations and CRF analyses.

Table 2: Crash Rates and Critical Rate Factors for KY 146 and KY 22 (2001-2003)

County	Route	Begin MP	End MP	HMVM (annual)	Average Crash Rate	PDO Crash Rate	Injury Crash Rate	Fatal Crash Rate	Overall Crash Rate	Critical Rate (RC)	Critical Rate Factor
Jefferson	KY 146	7.00	7.28	0.01	266	209.6	461.1	0.0	670.8	559.0	**1.20**
Jefferson	KY 146	7.28	8.25	0.06	266	155.0	56.8	0.0	211.9	364.1	0.58
Jefferson	KY 146	8.25	8.83	0.03	266	147.7	136.4	0.0	284.1	413.3	0.69
Oldham	KY 146	0.00	0.63	0.03	266	352.0	72.5	0.0	424.5	406.4	**1.04**
Oldham	KY 146	0.63	2.15	0.08	266	272.7	51.1	0.0	323.8	354.9	0.91
Oldham	KY 146	2.15	2.36	0.01	266	432.8	39.3	0.0	472.2	549.2	0.86
Oldham	KY 22	3.54	3.93	0.01	266	500.4	200.2	0.0	700.6	488.7	**1.43**
Oldham	KY 22	3.93	5.32	0.05	266	360.8	137.8	0.0	498.6	376.9	**1.32**

[1] Source: Kentucky Transportation Research Center, Analysis *of Traffic Crash Data in Kentucky, 1999-2004.*

The total crash rates along KY 146 in Jefferson County (388.9 crashes per HMVM) and Oldham County (406.8 crashes per HMVM) and on KY 22 in Oldham County (599.6 crashes per HMVM) are higher than the 1999 – 2003 statewide average for two-lane urban roadways of 282 crashes per HMVM. The injury crash rates along KY 146 in Jefferson County (218.1 crashes per HMVM) and KY 22 in Oldham County (169.0 crashes per HMVM) are higher than the 1999 – 2003 statewide average for two-lane urban roadways of 69 injury crashes per HMVM. The injury rate along KY 146 in Oldham County (54.3 crashes per HMVM) is slightly lower than average.

Comparing the crash rates to other state-maintained roadways within Jefferson and Oldham Counties, KY 146 had a higher crash rate than the 1999 – 2003 average rate for Jefferson County of 203 crashes per HMVM. The same is true for KY 146 and KY 22 in Oldham County, as the average crash rate for state-maintained roads in Oldham County was 181 crashes per HMVM.

Four roadway segments had CRF's greater than 1.0. These segments, as well as the total number of crashes and CRF's for all roadway segments, are shown in Figure 3.

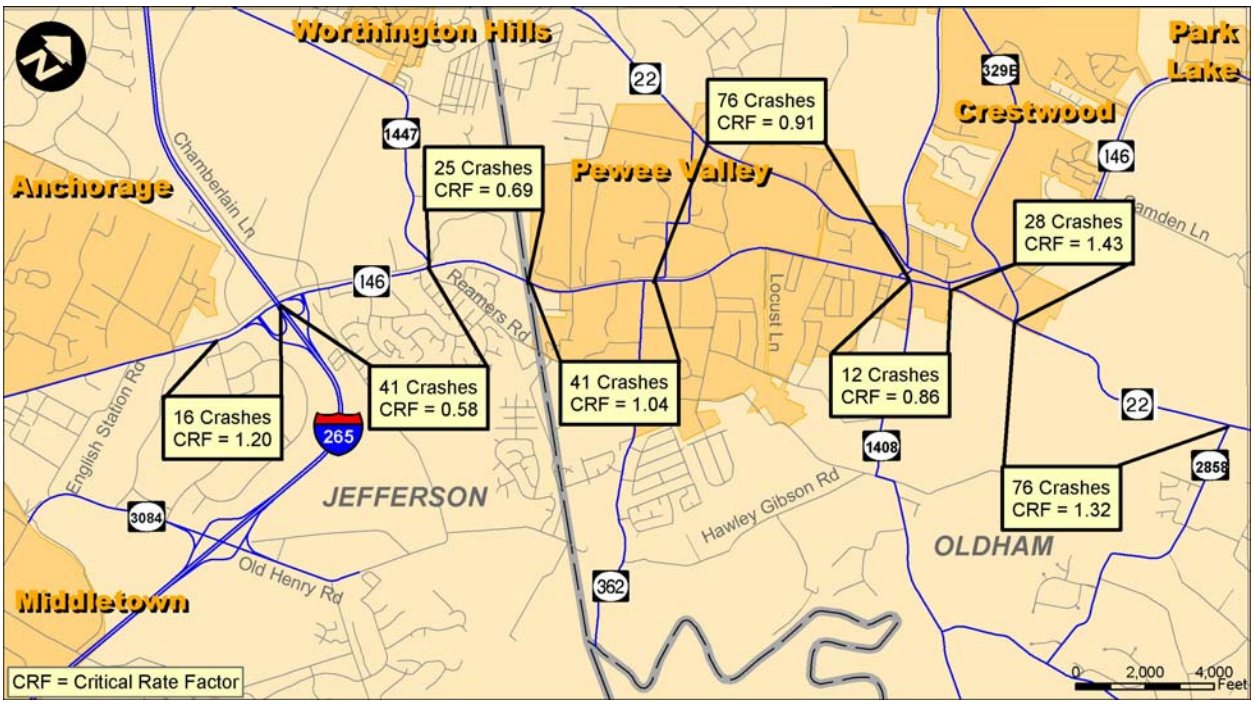

Figure 3: Crashes and Critical Rate Factors for KY 146 and KY 22 (2001–2003)

The highest CRF (1.43) is on KY 22 between KY 146 and KY 329B in Crestwood. The adjacent segment of KY 22, between KY 329B and KY 2858, had the second highest CRF (1.32). The other segments with CRF's greater than 1.0 are KY 146 between Henry Miller Parkway and I-265 and KY 146 between the Jefferson/Oldham County line and KY 362 in Pewee Valley.

1.7 Transportation Demand

Similar to crash history, understanding a roadway's existing and anticipated traffic characteristics is critical in determining the need for and scope of improvements. With respect to the Old Henry Road-Crestwood Connector Study, congestion along KY 146 and KY 22 might suggest the need for additional access between I-265 and Crestwood.

In order to fully evaluate the transportation demand of the project area, the *KY 22/Old Henry Road Subarea Model* was developed to accurately estimate traffic volumes in the area. The subarea model was performed as a part of the Old Henry Road-Crestwood Connector Study and two concurrent studies for potential improvements to KY 22. This effort resulted in a calibrated subarea travel demand model for the year 2002 and traffic forecasts for various alternative scenarios for the year 2028. These improvement scenarios include potential enhancements to KY 22 as well as the construction of the Crestwood Connector. The projected traffic volumes utilized in the Old Henry Road analysis assume an improved KY 22 to KY 393. In addition, the subarea model included a number of additional transportation improvements that are anticipated for completion prior to 2028. These improvements include the following projects:

- I-64: Widen to six lanes from I-265 to KY 53
- New Route: US 42 to KY 1447 connector Road
- I-71: Widen to six lanes from I-64 to I-265
- I-71: Widen to six lanes from I-265 to KY 53
- I-265: Widen to six lanes between I-64 and I-71
- I-265: Reconstruct interchanges at I-64 and US 60
- US 42: Widen to three lanes from Oldham County line to KY 1694
- US 60: Widen to six lanes from KY 1747 to I-265
- KY 146: Widen to five lanes between Factory Lane and Reamers Road
- KY 146: Widen to three lanes between KY 329 and KY 53
- KY 393: Widen to three lanes between KY 22 and KY 146
- KY 1447: Widen to five lanes from Murphy Lane to Collins Lane
- KY 1447: Widen to five lanes from Herr Lane to KY 1747
- English Station Road: Widen to three lanes between Aiken Road and Avoca Lane

Design hour Level of Service (LOS) was calculated for each study roadway segment using Highway Capacity Software (HCS) Version 4.1d. With values ranging from A to F, LOS provides a relative indication of the quality of traffic flow. LOS characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, traffic interruptions, and comfort and convenience. LOS A indicates free flow traffic conditions and LOS F denotes severe congestion. Generally, LOS D indicates a facility is operating at or near its capacity, and LOS C is least desirable in urban areas. Figure 4 illustrates the LOS condition for a two lane and four lane highway.

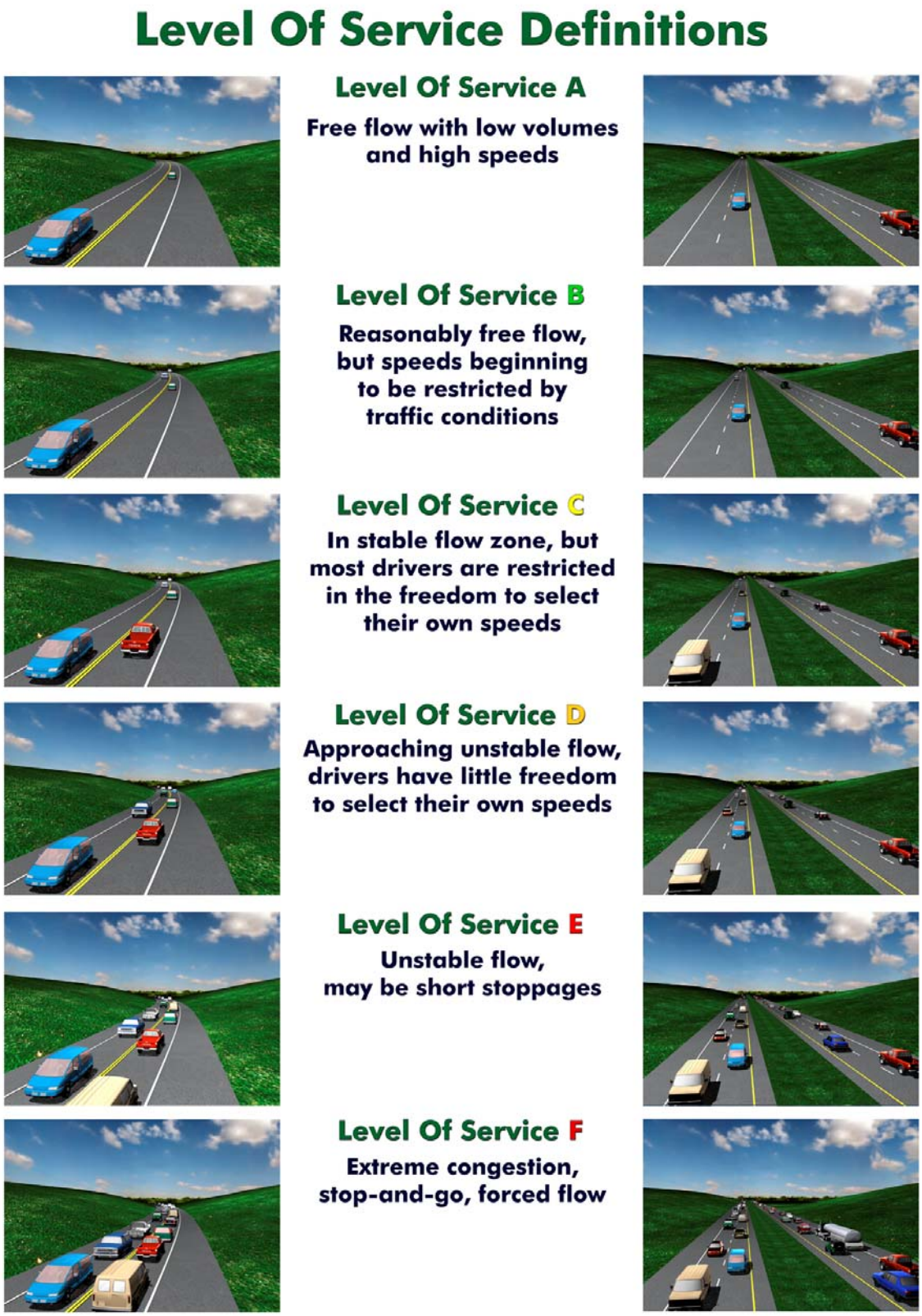

Figure 4: Level of Service Definititons

Existing traffic information, lane and shoulder characteristics, and other required data (i.e. terrain, passing sight distance, etc.) were extracted from the KYTC Highway Information System (HIS) database. Design hour volumes were developed by multiplying the average daily traffic (ADT) volumes by the K-factor (10%). The results of the current year analyses, including the design hour LOS, are shown in Figure 5. Where two LOS values are indicated, the first value is for the non-peak direction of travel.

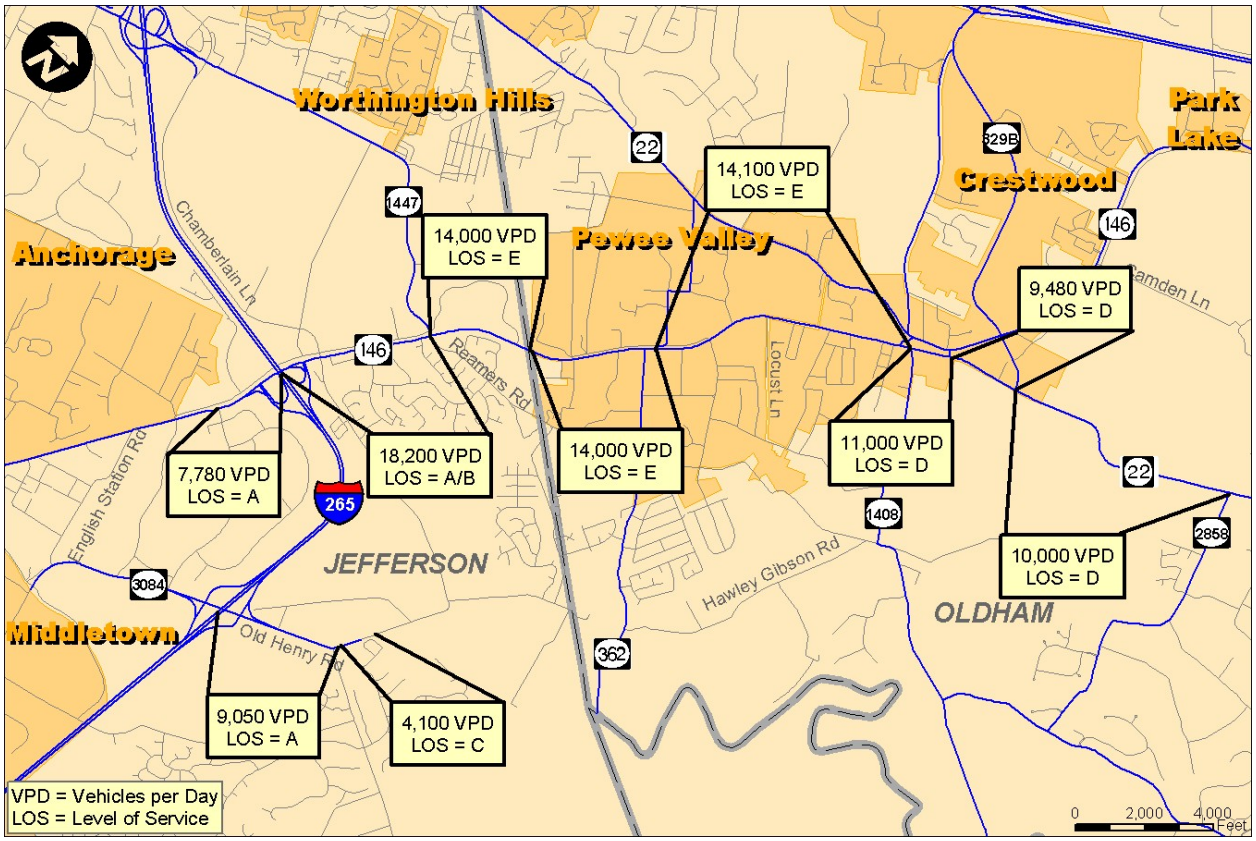

Figure 5: Existing (2004) Average Daily Traffic Volumes and Peak Hour Levels of Service

The forecasted traffic volumes for the year 2028 and the corresponding LOS values for the no build and build alternatives runs are presented in Table 3. Where two LOS values are indicated, the first value is for the non-peak direction of travel.

Table 3: Existing and Forecasted Traffic Volumes and Level of Service

County	Route	Begin MP	End MP	Description	2004 ADT	LOS	2028 No Build	LOS	Alternative 45-C/5-2 (5-3)	LOS	Alternative 45-B/6	LOS
Jefferson	KY 146	7.280	8.251	I-265 - KY 1447 (Westport Rd)	18,200	A/B	45,200	C/D	30,500	B/C	30,500	B/C
Jefferson	KY 146	8.251	8.825	KY 1447 - Oldham County Line	14,000	E	21,700	E	17,000	E	17,600	E
Oldham	KY 146	0.000	0.630	Jefferson County Line - KY 362	14,000	E	21,700	E	17,000	E	17,600	E
Oldham	KY 146	0.630	2.150	KY 362 - KY 1408	14,100	E	17,800	E	13,200	D	14,000	E
Oldham	KY 146	2.150	2.361	KY 1408 - KY 22 (East Junction)	11,000	D	17,800	E	13,200	E	14,000	E
Oldham	KY 22	3.544	3.929	KY 146 - 329B	9,480	D	19,200	E	11,700	A/A	9,200	A/A
Oldham	KY 22	3.929	5.321	KY 329B - Crestwood Connector	10,000	D	24,100	E	13,100		14,500	
Oldham	KY 22	*Proposed*		Crestwood Connector - KY 2858 (Abbott Ln)					37,300	C/D	36,300	B/D
Jefferson	KY 3084	1.146	1.799	I-265 - Bush Farm Road	9,050	A	12,200	A	35,200	B/C	34,800	B/C
Jefferson	KY 3084	1.799	1.978	Bush Farm Road - End of State Maint.	4,100	C	6,200	C	41,600	C/D	40,100	C/D
Jefferson	KY 3085	1.978	2.490	End of State Maint. - Factory Ln			4,000	C	44,300	C/D	43,500	C/D
Oldham	Crestwood Connector	*Proposed*		Factory Ln - KY 362					44,400	C/D	43,500	C/D
Oldham	Crestwood Connector	*Proposed*		KY 362 - KY 1408					35,900	B/D	33,400	B/C
Oldham	Crestwood Connector	*Proposed*		KY 1408 - KY 22					22,300	A/B	24,400	B/B

*Note: All traffic volumes and Level of Service values are for the year 2028 forecasts, with the exception of the existing (2004) data

The Old Henry Road\Crestwood Connector does relieve traffic on KY 146 through Crestwood and Pewee Valley. When the new roadway is constructed, the traffic on KY 146 will immediately be reduced. Over a twenty year period, as growth in Oldham County and Jefferson County continues to occur, traffic will begin to build back up to current levels. Without the new roadway, traffic on KY 146 will continue to grow, reaching capacity levels of over 20,000 vpd. Traffic on KY 146 will become extremely congested for longer periods of the day. This will greatly increase delay and increase accident potential.

2.0 ALTERNATIVES

2.1 No-Build Alternative

The No-Build Alternative would leave the existing roadway system as it currently exists with only routine maintenance performed as needed. The no build alternative would not meet the purpose and need for this project. The alternative would not support the anticipated growth along the existing roadway corridor. As growth occurs within the corridor and traffic continues to grow, the no build alternative would adversely affect the corridor by leading to decreased safety and higher accident rates, increased congestion, and decreased pedestrian and bicycle safety. The no-build alternative would not relieve KY 146 and would lead to an increase in accidents along KY 146 and the existing roadways within the corridor due to increased traffic.

Traffic volumes on KY 146 will continue to increase to approximately 22,000 vpd in 2028. The Level of Service on the majority of KY 146 through Pewee Valley and Crestwood is currently E for 15,000 vpd. Traffic volumes over the next 20 years will increase and reach capacity levels. The Level of Service on KY 146 in 2028 will be F.

Bicycle and Pedestrian facilities do not currently exist with the corridor. Pedestrian and bicycle activity is expected to increase along existing Old Henry Road as residential subdivisions continue to be built. Commercial development at the Old Henry Road interchange will encourage pedestrian and bicycle activity from the residential neighborhoods to the commercial development. With the no-build alternative, pedestrians and bicyclists are forced to use existing Old Henry Road. With its narrow lane widths and no shoulders, this creates a hazardous situation. As more development occurs within the corridor and traffic volumes increase, pedestrian and bicycle safety will continue to worsen.

Due to the above conditions, the No-Build Alternative would not support the purpose and need of the project.

2.2 Alternatives Considered But Eliminated

2.2.1 Transportation Systems Management/Mass Transit

Transportation Systems Management (TSM) Alternatives involve minor improvements to the existing highway system such as minor alignment shifts, addition of turning lanes, widening shoulders, installing traffic signals, or other traffic service improvements. These TSM would not solve the travel demand and transportation network deficiencies of the existing roadway system, would not relieve development pressures in the Old Henry Road corridor, and therefore will not meet the purpose and need of the project. Although TSM measures could result in some localized traffic safety and operational improvements at select locations on KY 146 and within the corridor, they do not address the need for a safer and more efficient roadway that will provide access, system linkage, and continuity that are crucially needed in the region. TSM measures have been implemented along KY 146 in recent years, including enhancements at intersections and turn lanes. Although these enhancements have improved safety and congestion at certain intersections, they have not reduced the overall traffic volumes on KY 146. Due to several factors along KY 146, including existing utilities, the adjacent railroad track, and historical properties, TSM measures cannot be implemented along the entire stretch from I-265 to KY 22. As traffic continues to grow on KY 146, the congestion will continue to grow. TSM alternatives do not meet the expected traffic demand within the corridor either. Since the TSM alternative has

been demonstrated not to adequately address the project purpose and need requirements, it has been eliminated from further consideration and detailed study.

Mass transit alternatives generally help relive congestion by improving the efficiency of the mode of travel. A large scale transit service with high ridership can affect travel demand and net traffic volumes under favorable conditions. These conditions include common origins and destinations, schedule compatibility, convenience, on-time service, ease of transfer among different routes, and costs.

The Transit Authority of River City, TARC, does currently provide bus service to KY 146 through express route number 64. Service is provided on weekday mornings and afternoons. A total of 12 daily trips are provided during the weekday. No weekend service is provided. This route provides express service from Oldham Plaza in LaGrange to downtown Louisville via Buckner, Crestwood, Pewee Valley, Forest Springs, Fincastle and I-71. Approximately 100 persons per day utilize the service. Travel time for the entire trip from LaGrange to Downtown Louisville is approximately one hour. The route travels along KY 146 starting at Westport Road and continues through Crestwood along KY 146 to Lagrange. A second express route to Oldham County is currently being planned between LaGrange and downtown Louisville. The new planned route will utilize I-71 and not travel along KY 146.

No routes currently serve the Old Henry Road area. Due to the suburban nature of the region, the absence of large scale employers and common trip generators, the extensive service area of the project, and the diversity of the potential user schedules, the mass transit alternative alone will not relive traffic congestion on KY 146 or within the Old Henry Road project corridor. Therefore, the mass transit alternative would not meet the purpose and need of the project and has been eliminated from further consideration. The proposed build alternatives will relieve traffic congestion on KY 146 and could improve the travel time of the existing bus route along KY 146.

2.2.2 Initial Build Alternatives

The build alternatives for the project were developed and revised over several years as the project development process evolved. The following represents a chronological order of the alternative development process, which is described in more detail below and in Section 2.3:

- 1999-2000 – Development of Initial Build Alternatives. Alternatives A, B, and C in Jefferson County and 1, 2, and 3 in Oldham County

- 2000 – Addition of Alternative 4 in Oldham County and the Relocation of KY 1408 for Alternative 2, 3, and 4 in Oldham County following Public Meeting #2

- 2000-2001 – Development of Avoidance Alternatives, 5 and 6, in Oldham County due to Section 4(f) impacts with Alternatives 1, 2, 3, and 4.

- 2001- Elimination of Alternatives 1, 2, 3, and 4 in Oldham County due to avoidance alternatives, 5 and 6, being determined prudent and feasible.

- 2001-2003 – Development of Alternatives 45-B and 45-C in Jefferson County due to changing land use. Previous alternatives A, B, and C, were eliminated.

- 2003 – Development of Alternative 45-D following Public Meeting #3.

The initial build alternatives were developed by the advisory committee as part of the public involvement process in 1999 (See Section 5.1). After being informed of process and known issues within the corridor, committee members were asked to draw lines on a map depicting their preferred location of the roadway. All of the advisory committee lines were presented at the first public meeting. Those lines are shown in Figure 6.

The advisory committee lines were broken down into sections that were designated by nodes at each end. At each node a new section could be chosen. Based on comments received from the first public meeting, the advisory committee combined the sections and narrowed the lines down to three to be further studied. The three initial build alternatives were developed from these combinations of sections. The initial build alternates and there corresponding sections as shown on Figure 6, developed by the advisory committee were:

A-3 (A – B – C – E – F – G –I – K – L)
B-2 (A – B – C – D – F – G – J – L)
C-1 (A – B – C – D – D’ – G – H – J – L)

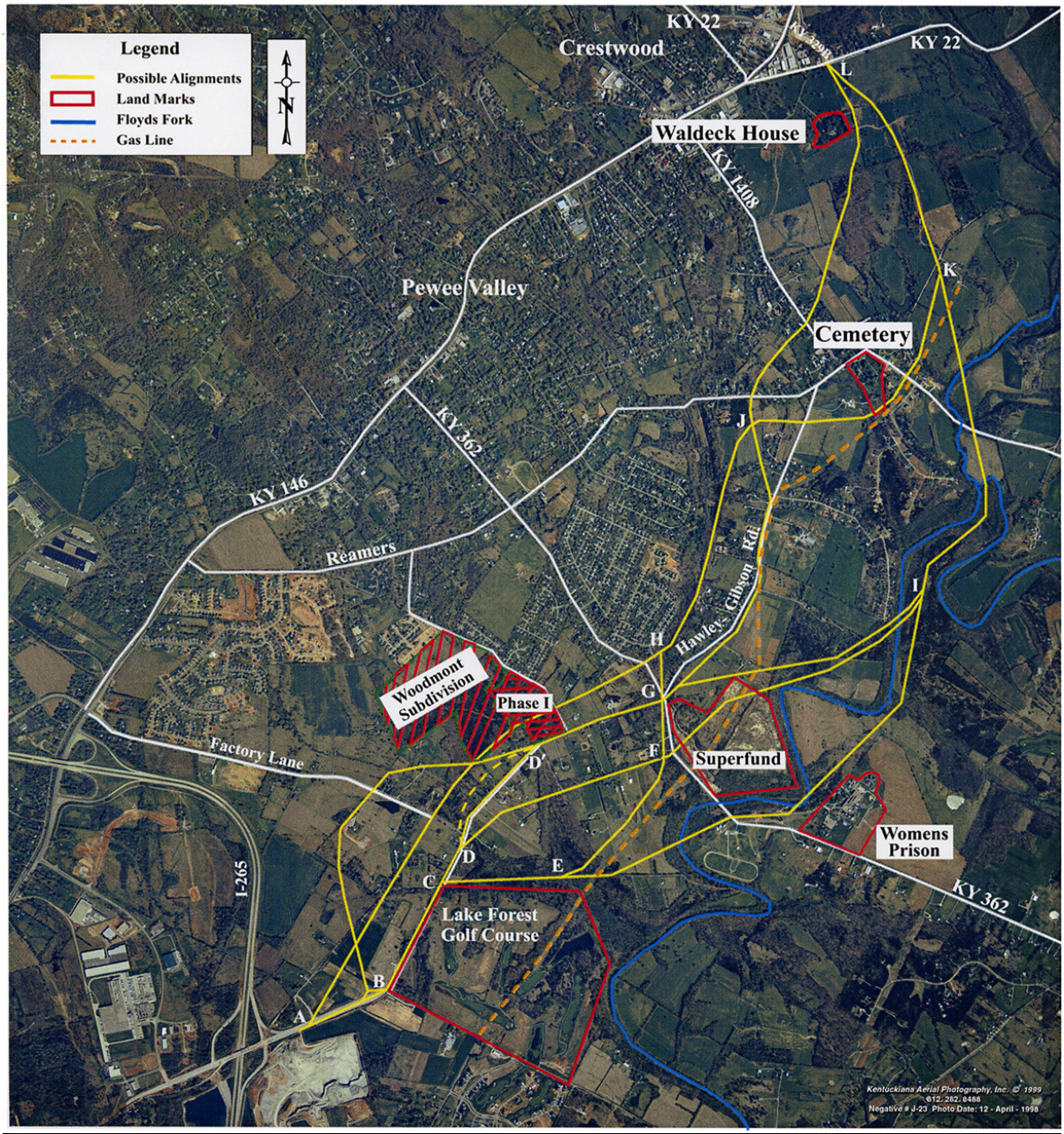

Figure 6. Citizens Advisory Committee Lines (1999)

Due to the location of the Red Penn landfill and the Ash Avenue Sanitary Sewer Plant, all of the alternatives crossed KY 362 in approximately the same location – near the beginning of Hawley Gibson Road. Due to this, the project was divided into two sections, a Jefferson County section, from the I-265 Interchange to KY 362, and an Oldham County section, from KY 362 to KY 22. Alternatives A, B, and C were located in Jefferson County. Alternatives 1, 2, and 3 were located in Oldham County. These initial build alternatives are shown in Figure 7. Alternatives from both sections could be combined to provide the most desirable alternative for each section. The initial alternatives in Oldham County all terminated at KY 329B, near the Waldeck Mansion. The alternatives did not impact the Waldeck Mansion but did traverse the original

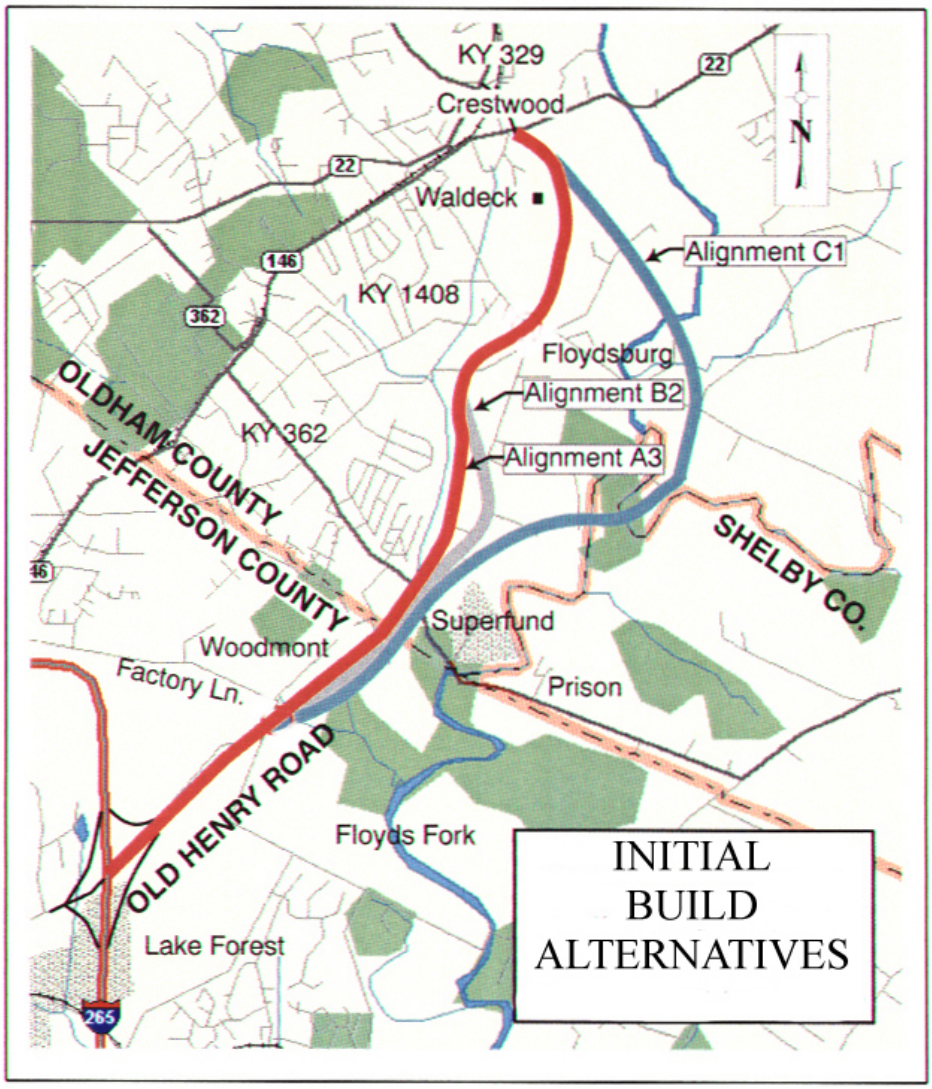

Figure 7. Initial Build Alternatives

Waldeck Farm. The initial Cultural Historic review of the Waldeck property and the review done for the KY 22 widening project identified only the property immediately surrounding the mansion as being potentially eligible for the National Register of Historic Place. Environmental baselines were performed on all the initial build alternatives. Below is a description of the alternatives presented at the second public meeting.

<u>Jefferson County Initial Alternatives</u>

All of the initial Jefferson County alternatives followed existing Old Henry Road from the I-265 Interchange to Factory Lane. The differences in the Jefferson County alternatives occurred after Factory Lane. All of the alternatives are relatively common again near the intersection of Hawley Gibson Road and KY 362 near the Red Penn landfill.

Alternative A – Proceeding Factory Lane, Alternative A traveled to the west behind an existing row of houses that front Old Henry Rd. To travel behind the houses on Old Henry Rd., a sharp curve radius was required. The alternative crossed back over Old Henry Rd. before reaching Woodmont Subdivision and traveled parallel to existing Old Henry Road. There was an approximate 60-foot buffer zone between the existing roadway and the new roadway.

Alternative B – Proceeding Factory Lane, Alternative B traveled to the west side of Old Henry Rd. but required the relocation of the homes avoided by Alternative A due to a flatter curve radius. Alternative B was similar to Alternative A from Woodmont Subdivision to KY 362.

Alternative C – Proceeding Factory Lane, Alternative C traveled to the west of existing Old Henry Rd. behind the houses on that front the east side of the existing roadway. Alternative C remained east of Old Henry Rd. and of Alternatives A and B before reaching KY 362. Alternative C had a buffer zone that varies from 500 to 1000 feet from existing Old Henry Rd.

Oldham County Alternatives

Alternative 1 – Alternative 1 traveled northeast after crossing KY 362. The alternative crossed Floyd Fork into Shelby County and crossed back into Oldham County east of Floydsburg. Alternative 1 crossed KY 1408 near the KY 1818 intersection. There were a total of four creek crossings associated with Alternative 1, two crossings of Floyd's Fork, Asher's Run, and Curry's Fork. The alternative traveled through the Sky View Farm and Waldeck Farm properties and tied into KY 22 at newly constructed KY 329B. Alternative 1 was approximately 1 mile longer than the other Oldham County alternatives.

Alternative 2 – Alternative 2 traveled adjacent to Hawley Gibson Rd. through the farmland located to the east of the existing roadway. The alternative provided a buffer zone of approximately 350 feet between the existing roadway and new roadway. Alternative 2 crossed back over Hawley Gibson Rd. before reaching Car-Nae Estates Subdivision. Alternative 2 crossed Old Floydsburg Rd. and KY 1408 and tied into KY 22 at KY 329B.

Alternative 3 – Alternative 3 traveled to the west of Hawley Gibson Rd. along the existing tributary to Floyds Fork. The alternative crossed the backside of Francis Avenue and provided a buffer zone of approximately 800 feet from Hawley Gibson Rd. and approximately 500 feet from the subdivisions located on the other side of the creek. The alternative crossed Old Floydsburg Rd. and is similar to Alternative 2 from Floydsburg to KY 22.

As a result of the second public meeting, another alternative, Alternative 4, was added for the Oldham County section of the roadway. This alternative affected the Floydsburg area only and involved shifting the proposed alignments through Floydsburg approximately 600 feet to the west to border Cherry Lane and move further away from the Floydsburg community. A relocation of KY 1408 around Floydsburg was also recommended in conjunction with Alternatives 2, 3, and 4. The relocation would eliminate traffic traveling from east of Floydsburg from the developments along KY 1408, KY 1818, and western Shelby County.

In the fall of 2001, the original Waldeck Farm was nominated for the National Register of Historic Places by the owner. This nomination increased the historical boundary that was

originally established for the project that included only the immediate area surrounding the Waldeck Mansion to the entire original farm, an area of 323 acres. This expansion of the boundary impacted all of the build alternatives in Oldham County. Upon inclusion of the larger boundary to the National Register of Historic Places, the project team began a 4(f) analysis and developed avoidance alternatives to impacting the historic resource. Alternatives 5 and 6 were developed as avoidance alternatives. These alternatives moved the termini of the project from the KY 329B and KY 22 intersection to approximately one mile further north on KY 22. Upon the completion of a traffic study and engineering investigation of the avoidance alternatives in Oldham County, the avoidance alternatives, Alternatives 5 and 6, were found to be prudent and feasible and meet the purpose and need of the project. Due to the Section 4(f) laws, the previous alternatives in Oldham County, Alternatives 1-4, were eliminated from further consideration due their impact the Section 4(f) resource of the Waldeck Farm, leaving Alternatives 5 and 6 as the only remaining alternatives in Oldham County.

During the Section4(f) investigation and the development of avoidance alternatives in Oldham County, the Jefferson County portion of the project was experiencing significant land use changes. Two new residential subdivisions were approved within the corridor that greatly impacted the proposed alternatives. Alternative C, which was favored at both the second public meeting and by the Advisory Committee, increased in relocations from 3 to 30 due to the new developments. Alternatives A, B, and C in Jefferson County were also designed to a 55mph design speed north of Factory Lane, limiting the typical section for the roadway to a 40 foot depressed median section with full 12 foot shoulders. With the Jefferson County portion of the project transitioning from a rural to suburban area, the design speed of the roadway was reduced to 45 mph to allow for a curb and gutter typical section with pedestrian and bicycle facilities. Due to the changing land use, the Jefferson County alternatives were revised and developed into new build alternatives. Alternatives A, B, and C were incorporated into the new build alternatives and eliminated from further consideration

2.2.3 Other Alternatives Considered But Eliminated

Widening of KY 146

The Widening of KY 146 Alternative involves widening KY 146 from the exiting I-265 Interchange in Jefferson County to the KY 22 intersection in Crestwood. Based on forecasted traffic volumes, KY 146 would have to be widened to at least 5 lanes in order to relive traffic congestion. KY 146 is 20 to 22 feet wide with 2 to 3 feet earth shoulders through most of Pewee Valley and Crestwood. Upgrading KY 146 to a five lane section would require the addition of approximately 40 feet of additional pavement plus safety improvements such as widening clear zones. KY 146 is bordered on the west side by the CSX railway and on the east side is lined with historic properties, utility poles, and old trees. Residents along the roadway and in Pewee Valley have resisted any widening discussions for years. An alternative that was presented during the development of the Oldham County Major Thoroughfare Plan to widen KY 146 met with opposition and was modified to only include improvement to key intersections along KY 146.

Widening of KY 146 would not relieve development pressures within the Old Henry Road corridor and therefore not meet the purpose and need of the project. Due to inability to address the Old Henry Road corridor and the impacts to the existing KY 146 corridor, the Widening of KY 146 Alternative was eliminated from further consideration.

Alternative 45-D

Following the public meetings in the fall of 2003, several representatives from the community and elected officials proposed an additional alternative in the Jefferson County portion of the project, Alternative 45-D. This alternative travels to the east of existing Old Henry Road and Alternatives 45-C/5-2 and 45-C/5-3, as discussed in Section 2.3, to avoid the newly constructed Fox Run subdivision. Alternative 45-D would not improve existing Old Henry Road from Factory Lane to Reamers Road. Alternative 45-D also severely impacts the development currently under construction at Old Henry Road and Factory Lane, as well as other previously unaffected residents. Alternative 45-D contains more relocations than all of the proposed build alternatives. Alternative 45-D was presented to the Citizens Advisory Committee but received very little support. Due to the negative impacts and lack of support by the Advisory Committee, Alternative 45-D was eliminated from further consideration.

New Route from I-265/Old Henry Road Interchange to KY 362 (Ash Avenue)

This alternative involves only building the Jefferson County portion of the project and terminating the roadway at KY 362 near Hawley Gibson Road. This alternative would leave the existing landscape in Oldham County intact. However, by completing the roadway only to KY 362, tremendous traffic demand would be placed on existing narrow roadways such as KY 362 and Hawley Gibson Road in the Oldham County portion of the project. KY 362 and Hawley Gibson Road are not adequately designed to accommodate the additional volume. This alternative would not relieve traffic congestion on KY 146. It would likely increase congestion at the KY 146 and KY 362 intersection in Pewee Valley. This section of KY 146 is already operating at a Level of Service E. By not relieving traffic on KY 146, this alternative does not meet the purpose and need of the project and was eliminated from further consideration.

2.3 Build Alternatives Considered

Due to the location of the Red Penn landfill and the Ash Avenue Sanitary Sewer Plant, all of the proposed build alternatives cross KY 362 in approximately the same location – near the beginning of Hawley Gibson Road. Due to this, the project can be divided into two sections, a Jefferson County section, from the I-265 Interchange to KY 362, and an Oldham County section, from KY 362 to KY 22. The build alternatives in the Jefferson County portion of the project are Alternatives 45-B and 45-C. The proposed build alternatives in the Oldham County portion of the project are Alternative 5-2, 5-3, and 6. Any proposed build alternative in Jefferson County can be combined with any proposed build alternatives in Oldham County and vice versa. The proposed build alternatives have been combined for purposes of description and analysis in order to have continuous build alternatives from the Old Henry Road Interchange to KY 22. The proposed build alternatives are shown in Figure 8.

2.3.1 Alternative 45-B/6

This proposed alternative represents a combination of Alternative 45-B in the Jefferson County portion of the project and Alternative 6 in the Oldham County portion of the project. Alternative 45-B/6 begins at the Old Henry Road and I-265 Interchange and generally follows existing Old Henry Road to where it currently ends near the Jeffferon-Oldham County line north of Reamers Road. Alternative 45-B/6 crosses Bush Farm Lane, Old Henry Trail, Factory Lane, and the entrance to Woodmont and Fox Run subdivisions through this section. The horizontal and vertical deficiencies along existing Old Henry Road are brought up to current design standards through this section. The Reamers Road and Old Henry Road intersection is relocated to the north to allow for better access spacing along the roadway. The Old Henry Road and Apple Hill Road intersection is also relocated slightly north to align adjacent to relocated Reamers Road to create a four legged intersection. North of Reamers Road, Alternative 45-B/6 crosses KY 362 at an at grade intersection immediately east of the existing KY 362 and Hawley Gibson intersection. KY 362 near the proposed Old Henry Road intersection will be realigned to the north to provide for an at grade intersection. The terminus of Hawley Gibson Road is relocated from KY 362 to proposed Alternative 45-B/6 approximately 1,200 feet north of the proposed KY 362 and Old Henry Road intersection. Alignment 45-B/6 then shifts to the east and crosses Floyds Fork approximately 600’ south of the Blue Creek Subdivision. Upon crossing Floyds Fork, the alternative crosses into Shelby County briefly before crossing Floyds Fork again and back into Oldham County. The alternative crosses KY 1408 west of the existing KY 1818 intersection. The KY 1818 intersection with KY 1408 will be relocated approximately 600’ to the east in order to increase the distance from the KY 1818 and Old Henry Road intersection. The roadway then travels north, crossing Asher’s Run and Curry’s Fork twice before tying into KY 22 approximately 1 mile east of the KY 329B Intersection. In all, Alternative 45-B/6 contains five bridge crossings.

2.3.2 Alternative 45-C/5-3

Alternative 45-C/5-3 begins at the Old Henry Road Interchange and follows the same path along existing Old Henry Road as Alternative 45-B/6 until Factory Lane. Near Factory Lane, Alternative 45-C/5-3 shifts to the east and travels through the Ridge at Old Henry Subdivision and travels behind the properties that font on Old Henry Road. Alternative 45-C/5-3 travels through the rear portion of the Fox Run Subdivision and crosses Apple Hill Road near the Jefferson and Oldham County line. Alternative 45-C/5-3 impacts an existing apple orchard along

Abbott Grove Subdivision
KY 1818
KY 22
Reloc. KY 1408
Alternative 45-C/5-2 & 45-C/5-3
Floydsburg
Chapel View Estates Subdivision
Blue Creek Estates Subdivision
SHELBY COUNTY
Alternative 45-B/6
Car-Nae Estates Subdivision
Alternative 45-C/5-2
KY 329B
Old Floydsburg Rd.
Waldeck Mansion
KY 1408 Cherry Lane
Hawley Gibson Rd.
Francis Lane
Clovercroft Subdivision
Alternative 45-C/5-3
Ashbook Subdivision
KY 362 (Ash Ave.)
OLDHAM COUNTY
JEFFERSON COUNTY
Alternative 45-C/5-2 & 45-C/5-3
Fox Run Subdivision
Crestwood
KY 146
Village Green Subdivision
Reamers Rd.
Woodmont Subdivision
Ridge at Old Henry Subdivision
Alternative 45-B/6
Lake Forest Subdivision
Bush Farm Rd.
Old Henry Crossing Development
Factory Lane
Old Henry Trail
Old Henry Crossing Development
Pewee Valley
I-265

Legend

- Alternative 45-B/6
- Alternative 45-C/(5-2)(5-3)
- Alternative 45-C/5-2
- Alternative 45-C/5-3
- Proposed Right of Way
- Proposed Disturbed Limits

Figure 8
Build Alternatives
SCALE 1" = 1,200'

Apple Hill Road. Alternative 45-C/5-3 does not impact existing Old Henry Road north of Factory Lane and leaves the existing roadway intact for local access. Reamers Road is also not relocated.

Once entering Oldham County, Alternative 45-C/5-3 crosses KY 362 near the KY 362 and existing Hawley Gibson Road intersection. KY 362 is relocated to the north near the proposed intersection to create an at-grade intersection. The terminus of Hawley Gibson Road is relocated approximately Hawley Gibson Road 1,200 feet to the north of the KY 362 and Old Henry Road intersection. The proposed alternative travels to the west of existing Hawley Gibson Road along the tributary of Floyds Fork. The Alternative crosses the back of Francis Avenue. Alternative 45-C/5-3 crosses Old Floydsburg Road then borders the rear of the properties along Cherry Lane and crosses KY 1408 approximately 1,200 feet from KY 1408 and Old Floydsburg Road intersection in Floydsburg. The Alternative then travels northeast and crosses Curry's Fork before turning back to the north and tying into KY 22 at the same location as Alternative 45-B/6. Alternative 45-C/5-3 also involves the relocation of KY 1408 around Floydsburg. The relocation of KY 1408 begins east of Floydsburg near the existing KY 1408 bridge across Curry's Fork and travels to the north of Floydsburg and ties into Alternative 45-C/5-3.

2.3.3 Alternative 45-C/5-2

Alternative 45-C/5-2 follows the exact path as Alternative 45-C/5-3 except between KY 362 and Old Floydsburg Road. After crossing KY 362, the alternative remains to the east of Hawley Gibson Road and travels adjacent to Hawley Gibson Road through the farmland located to the east of the existing roadway. A connector to Hawley Gibson Road is provided to the proposed roadway. The alignment provides a buffer zone of approximately 350 feet between the existing roadway and new roadway. Alternative 45-C/5-2 crosses back over Hawley Gibson Road before reaching Car-Nae Estates Subdivision and joins Alternative 45-C/5-3 before crossing Old Floydsburg Road.

2.4 Typical Section and Design Speed

With the existing and proposed developments within the Jefferson County portion of the project, the proposed design speed from the Old Henry Road interchange to KY 363 is 45 mph with a curb and gutter with sidewalk typical section. The 45 mph design speed better accommodates the suburban area with reduced speed and increased opportunities for access. This decision was strongly supported by Louisville Metro. The recommended curb and gutter typical section in Jefferson County will better accommodate the residential nature of the area by providing for sidewalks along the new roadway. Six foot bike lanes are also included on both sides of the roadway. The roadway will also contain a 30 foot raised median. The 30-foot width will allow for vehicles to cross one direction of the roadway and wait in the median without overhanging into the driving lane, as well as provide for U-turns. Several safety problems currently exist on roadways throughout Jefferson County with vehicles overhanging into the driving lane. The 30-foot median will also create a boulevard feel to the roadway. The following design guidelines apply to the Jefferson County portion of the project:

- Design Speed – 45 mph
- Maximum Superelevation – 6%
- Access Spacing – 600 feet
- Minimum Radius – 660 feet
- Maximum Grade – 6%
- Minimum Stopping Sight Distance – 360 feet

Due to the rural nature of the study corridor in Oldham County, a 55 mph design speed is being used for the project north of KY 362 to KY 22. The typical section is a rural typical with a 40 foot grass depressed median and full shoulders. The following design guidelines apply to the Oldham County portion of the project:

- Design Speed – 55 mph
- Maximum Superelevation – 8%
- Access Spacing – 1,200 feet
- Minimum Radius – 965 feet
- Maximum Grade – 5%
- Minimum Stopping Sight Distance – 495 feet

The roadway will have a minimum of two lanes in each direction for its entire length. With traffic volumes exceeding 40,000 vehicles per day, a four lane roadway is required to maintain an acceptable Level of Service. Consideration has been given to constructing an initial three lane roadway and later adding the other two travel lanes. However, with the expected traffic volumes, particularly in Jefferson County, a three lane facility will not operate at an acceptable level of service, and therefore not relieve congestion within the corridor and not meet the purpose and need of the project. With the development occurring within the Old Henry corridor and within Oldham County, traffic volumes on the new roadway are expected to exceed the capacity of a three lane facility shortly after construction.

Figure 9 illustrates the proposed typical sections of the roadway.

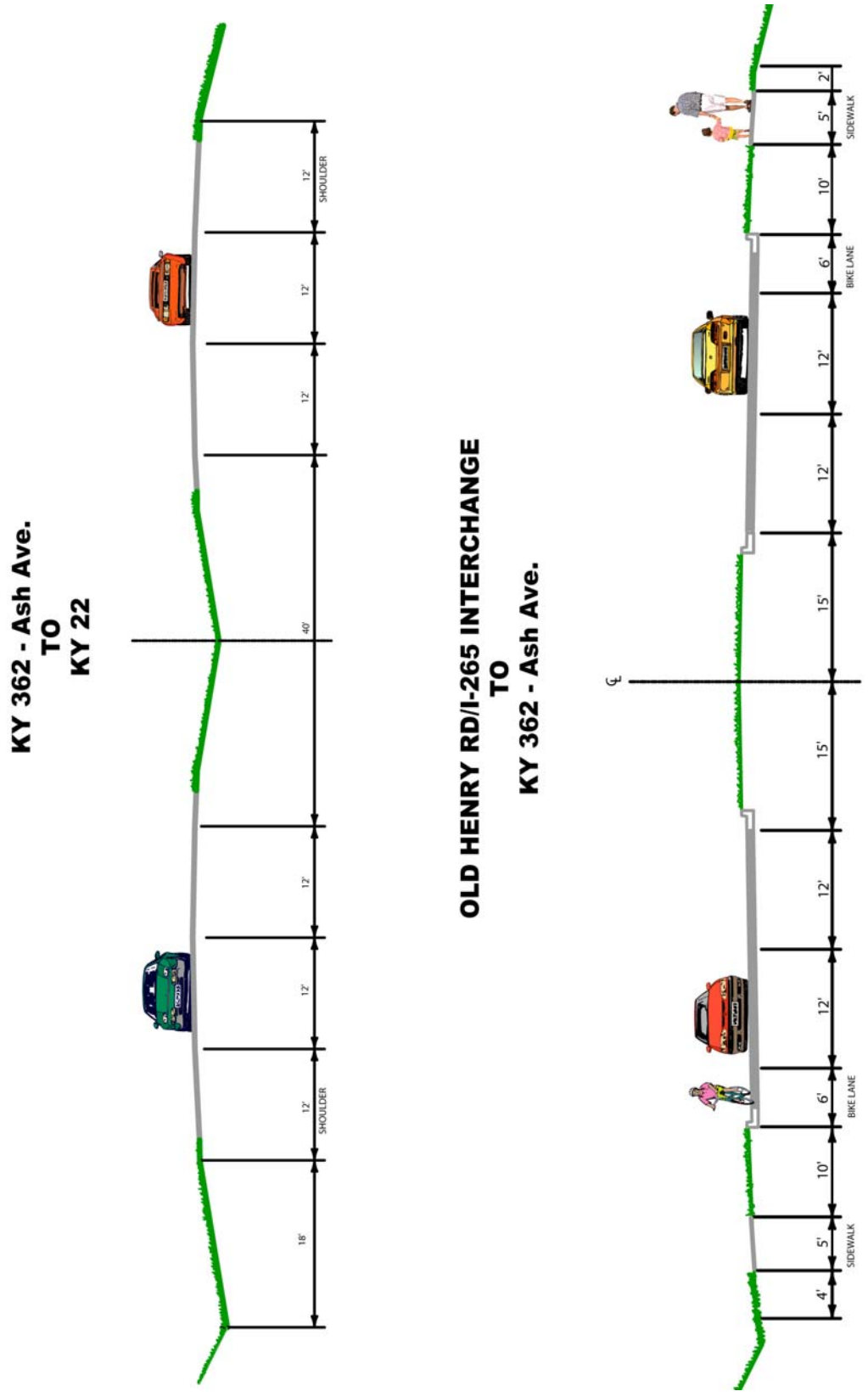

Figure 9 – Proposed Typical Sections

2.5 Traffic Comparison of Alternatives

The following table illustrates the projected daily traffic due to the Old Henry Road/Crestwood Connector project for the year 2002 and the year 2028 for the proposed alternatives.

Table 4. Old Henry Road/Crestwood Connector Daily Traffic Volumes

Location	2002 ADT	2028 ADT No-build	2028 ADT 45-C/5	2028 ADT 45-B/6
KY 146 - SW of KY 362	17,100	21,700	17,000	17,600
KY 146 - SW of Locust Lane	14,500	17,800	13,200	14,000
Old Henry Road- NE of Factory Lane	n/a	n/a	44,300	43,500
Crestwood Connector- SW of KY 362	n/a	n/a	44,400	43,500
Crestwood Connector- NE of KY 362	n/a	n/a	35,900	33,400
Crestwood Connector- NE of KY 1408	n/a	n/a	22,300	24,400

The Old Henry Road\Crestwood Connector does relieve traffic on KY 146 through Crestwood and Pewee Valley. When the new roadway is constructed, the traffic on KY 146 will immediately be reduced. Over a twenty year period, as growth in Oldham County and Jefferson County continues to occur, traffic will begin to build back up to current levels. Without the new roadway, traffic on KY 146 will continue to grow, reaching capacity levels of over 20,000 vpd. Traffic on KY 146 will become extremely congested for longer periods of the day. This will greatly increase delay and increase accident potential. All of the proposed build alternatives relieve traffic on KY 146 by relatively the same amount. The alternatives also carry relatively the same volume of traffic. Based on the traffic volumes, a four lane roadway is required for the Old Henry Road-Crestwood Connector.

2.6 Cost Summary

The costs for each of the build alternatives are listed below in Table 5.

Table 5: Cost Summary

	45-B/6	***45-C/5-3***	***45-C/5-2***
Right of Way	$13,000,000	$24,000,000	$24,200,000
Utilities	$3,100,000	$2,000,000	$3,100,000
Construction	$50,500,000	$33,500,000	$34,500,000
Total	$66,700,000	$59,500,000	$61,800,000

The 2005 to 2010 Recommended State Six Year Highway Plan currently lists the following funding for the project:

- 2008 – $8,000,000 – Right of Way
- 2009 - $8,000,000 – Right of Way
- 2010 - $3,300,000 – Utilities

2.7 Preferred Alternative

The final selection of an alternative will be made only after consideration of impacts and public hearing comments. All of the build alternatives meet the Purpose and Need of the project. The environmental impacts for all of the alternatives were similar except for the socioeconomic impacts. The public involvement process also identified the socioeconomic impacts as a primary concern of the community. Based on these factors, Alternative 45-B/6 has been tentatively selected as the preferred alternative

Alignment 45-B causes less community disruption by widening the existing roadway and not bisecting existing subdivisions. Alternative 45-B relocates 6 residences in Jefferson County while Alternative 45-C relocated 19. Alternative 45-B is also more consistent with local planning and zoning. Planning and Zoning has reserved frontage from developments along the existing roadway. As the Old Henry corridor continues to develop, Planning and Zoning can work with developers to reserve frontage along the existing roadway. There are currently several proposed developments in the area that have been submitted to Louisville Metro Planning and Zoning. MSD is also currently constructing sewers along Old Henry Road, which is expected to increase development interests.

Due to the socioeconomic concerns, the project team has tentatively selected Alternative 6 for the Oldham County portion of the project. Alternative 5-2 and 5-3 impacts several residences along or near Hawley Gibson Road and in Floydsburg, while Alternative 6 only relocates one resident, compared to 8 for Alternative 5-2 and 14 for Alternative 5-3. Due to the bridge crossings and the location of the floodplain, Alternative 6 has greater opportunity for preserving access management along the corridor. All of the alternatives will contain at grade intersections with crossroads and access points. Alternatives 5-2 and 5-3 will contain several driveways and frontage roads required to access the numerous properties and subdivisions that currently exist along those alternatives. The only access points currently planned along Alternative 6 in Oldham County are at the major roadways at KY 362, Hawley Gibson Road, KY 1408 (near KY 1818), and at KY 22. Existing subdivisions and properties within the corridor will continue to utilize existing local streets and only access Alternative 6 through these major road crossings. Alternative 6 crosses large farm tracts where future access can be controlled through planning and zoning and access permit requirements. Due to the floodplains, development opportunities and the creation of additional roadways along the route will be limited. Alternative 6 will better service traffic traveling from KY 22 to the Old Henry Road Interchange with I-265 if access points can be limited in the future.

2.8 Environmental Impacts Comparison

Table 6: Summary of Environmental Impacts by Alternative

Impact Catagory	Alternative 45-B/6 (Preferred)	Alternative 45-C/5-2	Alternative 45-C/5-3
Air Quality Maximum 1 hour CO	3.7 ppm	4.1 ppm	4.0 ppm
# of Noise Impacted Receptors eligible for mitigation	4	5	5
Stream Crossings (Length)	24 (7,361')	14 (4,481')	16 (4,727')
Floodplain Impacts (crossings)	8	2	2
Wetland Impacts (acres)	0.12 0.12 Jurisdictional	0.95 0.11 Jurisdictional	0.95 0.03 Jurisdictional
T&E Species Habitat Impact (acres)	1.05 Indiana Bat 77.42 Others	2.85 Indiana Bat 77.57 Others	5.71 Indiana Bat 61.3 Others
Direct and Indirect Historic Structures	None	None	None
Arch. Resource Sites	2	Unknown*	Unknown*
Relocations	7 Residential 0 Commercial	27 Residential 1 Commercial	33 Residential 2 Commercial
Farmland Impacts (Acres)	129.6	90.1	98.8
Environmental Justice	None	None	None
Pedestrian/Bicycle Facilities	None	None	None
UST/ Haz. Mat. Sites Requiring Further Work (#)	2	1	1
Visual Impacts	Minor	Minor	Minor
Construction Impacts	Minor	Minor	Minor
Section 4(f) Properties Impacted	None	None	None

* Phase I archaeological studies were performed only on the preferred alternative

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACT

This section describes the existing social, economic, and environmental setting for the corridor and details the probable beneficial and adverse social, economic, and environmental impacts of the proposed alternatives. Impacts include direct, indirect and cumulative impacts to the affected ecological, aesthetics, historic, cultural, and social environment. Direct impacts are impacts that are caused by the build alterative and occur as the project is implemented within the footprint of the project, such as the relocation of residents or the filling in of a wetland. Indirect impacts are impacts that occur after the project has been implemented or occur outside of the project footprint, such as changes in travel patterns and surrounding land use changes. Cumulative impacts are impacts which result from the incremental impact of the project when added to other past, present, and future projects that have occurred or will occur near the proposed build alternatives.

3.1 Air Quality

Jefferson County is in the Louisville Interstate Air Quality Control Region. Oldham County is in the North Central Kentucky Intrastate Air Quality Control Region. Currently Jefferson County is a one-hour maintenance area for ozone and Oldham County is currently in attainment for all transportation related pollutants.

Emission factors for the Air Quality analysis were calculated and provided by the former Jefferson County Air Pollution Control District (JCAPCD), now known as the Louisville Metro Air Pollution Control District (APCD) using the Mobile5b Vehicle Emission Factor computer model, accepted by the United States Environmental Protection Agency (US EPA). This computer model predicts transportation related pollutant emission factors.

Carbon Monoxide (CO) concentrations were calculated with the CAL3QHC Microscale Dispersion computer model accepted by the US EPA. This computer model uses mobile source emission factors, traffic data, roadway geometry, and meteorological data to predict the transportation related CO concentrations at specified locations (receptors) adjacent to roadway facilities.

A microscale analysis was performed for the existing condition, no-build, and build alternatives. Each run of the model considered 36 wind angles in 10 degree increments with a worst case wind speed of 3.3 feet per second (ft/sec). The wind angle that results in the in the highest CO concentration is added to the one hour background concentration, assumed to be 2 parts per million (ppm) for the rural setting of the project corridor, to yield the total one hour CO concentration. Additional CAL3QHC model parameters include a value of 60 minutes for the averaging time, 175 centimeters for the surface roughness, and 0 ft/sec for both the settling and deposition velocities. Traffic volumes for 2002 and 2028 were modeled for each alternative. Seventeen modeling locations (called receptors) were selected for analysis based on proximity to existing and proposed roadways and represent areas venerable to decreases in air quality.

The maximum one hour and eight hour carbon monoxide level for the existing conditions, no build and build alternatives is shown below in Table 7. The future change in one hour CO concentrations is also shown below. The eight-hour concentration is obtained by multiplying by a 0.7 persistence factor.

Table 7. Air Quality Results

Alternative	Receptor	Maximum 1 Hour CO Concentration (ppm)	Maximum 8 Hour CO Concentration (ppm)	Future Changes in One Hour CO Concentrations (ppm)
Existing	10	2.4	1.48	-
No-Build	10	2.6	1.62	+0.2
45-B/6	1	3.7	2.39	+1.5
45-C/5-2	14	4.1	2.67	+2.1
45-C/5-3	13	4.0	2.60	+2.2

All calculated existing and future CO concentrations are below the one hour National Ambient Air Quality Standard (NAAQS) of 35ppm and the eight hour NAAQS of 9ppm. According to the predictions of the existing and future emissions of CO, the project will not result in negative air quality impacts in either Jefferson or Oldham Counties or their respective air control region. The projected increase in emissions of transportation related pollutants associated with the project should not alter the attainment status of the county with respect to current standards.

Transportation control measures are required pursuant to the Amended Final Conformity Guidelines, September 15, 1997. With respect to conformity, the proposed project is located on page 70, Section 2.9, Kentucky Projects in the Horizon Regional Mobility Plan for the Louisville Metropolitan Area (2002) of the latest conforming state transportation program and is in compliance with the Kentucky State Implementation Plan for Attainment and Maintenance of National and State Ambient Air Quality Standards.

Indirect impacts to air quality are expected to be insignificant. The proposed project will open up the project area for further development. However, projected traffic volumes used for the design alternatives have considered this future growth. The future CO concentrations will remain below the one hour and eight hour standards. Cumulative impacts are also expected to be insignificant.

3.2 Highway Noise

3.2.1 Noise Levels Analysis

A traffic noise analysis was conducted for this project in accordance with the Federal Highway Administration's current traffic noise policy, Procedures for Abatement of Highway Traffic Noise and Construction Noise, contained in Title 23 of the code of Federal Regulations part 772 (23CFR 772) and KYTC's Noise Abetment Policy (February 2000). A total of 17 receptor sites were modeled within the project area. All of the build alternatives were modeled for each receptor site. See Figure 10 for the location of each receptor.

The FHWA exterior Noise Abatement Criteria (NAC) for residential and institutional land uses is 67 dBA Leq (a measurement of noise in decibels over a period of time). For commercial and other uses, the NAC is 72 dBA Leq. Traffic noise impacts occur when the predicted traffic noise levels approach (within one dBA) or exceed the NAC set for the land use or produce a change in noise levels of 10 dBA or greater over existing levels. Impacts on receptors that meet or exceed any of these standards may be considered for noise abatement. Only residential and institutional land uses are currently located near the proposed alternatives.

Abbott Grove Subdivision
KY 1818
KY 22
SHELBY COUNTY
Chapel View Estates Subdivision
Blue Creek Estates Subdivision
Car-Nae Estates Subdivision
KY 329B
Floydsburg
Old Floydsburg Rd.
KY 1408
Cherry Lane
Hawley Gibson Rd.
Francis Ave.
Clovercroft Subdivision
Ashbook Subdivision
KY 362 (Ash Ave.)
OLDHAM COUNTY
JEFFERSON COUNTY
Crestwood
Fox Run Subdivision
Village Green Subdivision
Reamers Rd.
Woodmont Subdivision
Ridge at Old Henry Subdivision
Lake Forest Subdivision
Bush Farm Rd.
Factory Lane
Old Henry Trail
Old Henry Crossing Development
Old Henry Crossing Development
Pewee Valley
KY 146
I-265

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Legend

- 1 Noise Receptor Location
- Alternative 45-B/6
- Alternative 45-C/(5-2)(5-3)
- Alternative 45-C/5-2
- Alternative 45-C/5-3

Figure 10
Noise Receptor Locations
SCALE 1" = 1,200'

The existing, future no build, and future build predicted noise levels are shown in Table 8. The existing noise levels at the 17 receptors range from 37.0 to 64.2 dbl Leq, while the predicted noise levels range from 40.9 to 66.5 dbl Leq. for the no build condition.

Table 8: Existing and Future Noise Levels (dBA Leq)

Receptor	Existing	No-Build	45B/6	45-C/5-2	45-C/5-3
1	64.2	**66.5**	**73.7**	**67.2**	**67.1**
2	58.7	63.5	64.8	**67.4**	65.3
3	59.1	61.4	61.5	**68.2**	**68.2**
4	37.0	40.9	61.8	50.4	45.9
5	47.4	51.2	58.0	59.1	60.8
6	51.6	56.3	58.1	63.8	59.8
7	40.5	43.7	54.5	48.9	48.7
8	51.8	59.5	60.6	**69.9**	**70.2**
9	47.2	50.2	50.6	**68.4**	**68.3**
10	60.5	64.3	64.4	**66.3**	**66.2**
11	56.6	60.4	65.2	**67.5**	**69.5**
12	51.8	54.6	64.6	**70.3**	**70.3**
13	51.0	53.4	**68.5**	**66.0**	**66.0**
14	52.5	54.9	**68.0**	59.4	59.3
15	43.0	45.8	57.0	**69.1**	**69.1**
16	46.4	49.0	62.3	64.1	64.0
17	59.1	61.7	**67.5**	**67.7**	**67.7**

Note: Bold numbers indicate levels approaching or exceeding the corresponding Noise Abatement Criteria of 67.0 dba for residential sites.

The Residential NAC of 67.0 dBA Leq is approached or exceeded in the no build condition at Receptor 1. Alternative 45-B/6 exceeds the threshold at Receptors 1, 13, 14, and 17. Alternative 45-C/5-2 exceeds the criteria at Receptors 1, 2, 3, 8, 9, 10, 11, 12, 13, 15, and 17. Alternative 45-C/5-3 exceeds the threshold at Receptors 1, 3, 8, 9, 10, 11, 12, 13, 15, and 17. The noise levels at these receptors are attributed to the increased traffic levels in 2028. Traffic within the project corridor is expected to increase between 60% to 300%. The predicted traffic noise level increase over existing conditions is shown in Table 9.

Table 9: Predicted Change in Noise Levels From Existing Conditions (dBA Leq)

Receptor	No-Build	45B/6	45-C/5-2	45-C/5-3
1	2.3	9.5	3.0	2.9
2	4.8	6.1	8.7	6.6
3	2.3	2.4	9.1	9.1
4	3.9	**24.8**	**13.4**	8.9
5	3.8	**10.6**	**11.7**	**13.4**
6	4.7	6.5	**12.2**	8.2
7	3.2	**14.0**	8.4	8.2
8	7.7	8.8	**18.1**	**18.4**
9	3.0	3.4	**21.2**	**21.1**
10	3.8	3.9	5.8	5.7
11	3.8	8.6	**10.9**	**12.9**
12	2.8	**12.8**	**18.5**	**18.5**
13	2.4	**17.5**	**15.0**	**15.0**
14	2.4	**15.5**	6.9	6.8
15	2.8	**14.0**	**26.1**	**26.1**
16	2.6	**15.9**	**17.7**	**17.6**
17	2.6	8.4	8.6	8.6

Note: Bold numbers indicate those receptors that show a substantial increase (over 10 dBA) from existing traffic noise levels.

The receptors that showed a substantial increase in traffic noise (over 10 dBa) from the existing conditions for Alternative 45-B/6 are receptors 4, 5, 7, 12, 13, 14, 15, and 16. Alternative 45-C/5-2 shows a substantial increase at Receptors 4, 5, 6, 8, 9, 11, 12, 13, 15, and 16. Alternative 45-C/5-3 shows a substantial increase at Receptors 5, 8, 9, 11, 12, 13, 15, and 16. Many of these receptor sites are well below NAC threshold of 67.0 dBA despite showing an increase of 10 dBA over the existing conditions. This is attributed to the existing rural nature of some of the receptor sites and the distance to existing roadways.

Receptors that showed both a substantial increase in noise levels over existing conditions and have noise levels that approach or exceed the NAC threshold of 67.0 dBA for Alternative 45-B/6 are receptors 13 and 14. For Alternative 45-C/5-2 the receptor locations are 8, 9, 11, 13, and 15. For Alternative 45-C/5-3, the receptor locations are 8, 9, 11, 12, 13 and 15.

3.2.2 Noise Abatement Considerations

According to KYTC Noise Abatement Policy (February 2000), the KYTC will consider noise abatement measures for all of the receptors analyzed exceeding NAC criteria. For Alternative 45-B/6, the receptors ex exceeding the NAC are 1, 4, 5, 7, 12, 13, 14, 15, 16, and 17. Noise abatement measures for Alternative 45-C/5-2 at receptors 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, and 17 will be considered. Noise abatement measures for Alternative 45-C/5-3 at receptors 1, 3, 5, 8, 9, 10, 11, 12, 13, 15, 16, and 17 will be considered.

Consideration was given to noise abatement measures such as traffic management (truck restriction and speed reductions) and alteration of horizontal and vertical alignments. However, since this project serves as a bypass route, traffic management in the form of truck restrictions

and speed reductions would not meet the Purpose and Need for the project. With the amount of residential development within the corridor, vertical and horizontal alterations would result in greater impacts to residents and other increased environmental factors in most locations. Some consideration will be given to changes in vertical alignments in select locations where safety and other environmental factors are not compromised. The KYTC will consider structural noise barriers, such as walls berms, privacy fencing, and vegetative screening/ landscaping to control noise around the proposed roadway.

For a site to qualify for a noise barrier, it must be determined that the barrier will improve the predicted noise level for people and be cost effective. There are several criteria involved in barrier qualification: 1) the noise improvement must effect at least a 5 dBA reduction in noise levels, 2) there must be a greater than 3 dBA Leq increase between the No-build and the predicted noise levels, 3) the barrier must below the cost effectiveness factor (CEF) of $250 per dBA reduction per person protected per dBA noise increase set by KYTC, and 4) site characteristics must allow for barrier construction based on construction feasibility and engineering judgment. The CEF is calculated according to the following formula:

CEF= cost of barrier,$/ (persons benefited)(average reduction,dBa)(average increase,dba)

Based on criteria 1, 2, and 4, ten sites within the project corridor were evaluated for the cost effectiveness of a barrier. Receptors such as receptors 2, 8, and 13, do not represent a large number of residents, receptors 3 to 4, and were not evaluated since it is unlikely that barriers would be cost effective. Receptor 7, located near Abbott Grove subdivision, was not evaluated due to the feasibility of constructing an effective barrier at that location. The subdivision is located approximately 40 feet above the proposed roadway. The predicted noise levels for this location were well below the NAC thresholds. The ten locations where a barrier was investigated for feasibility are listed below:

- Lake Forest Subdivision (Receptor 17) – All three build alternatives
- Ridge at Old Henry Subdivision (Receptor 12) – All three build alternatives
- Woodmont Subdivision (Receptor 1) – Alternative 45-B/6
- Fox Run Subdivision (Receptors 14, 15, and 16) – All three build alternatives
- Proposed development on KY 362 (Receptor 11) – Alternative 45-C/5-3
- Ashbrook and Clovercroft Subdivisions (Receptor 5) – Alternatives 45-C/5-2 and 5-3
- Hawley Gibson Road near Francis Ave. (Receptor 6) – Alternative 45-C/5-2
- Blue Creek Estates (Receptor 4) – Alternative 45-B/6 and 45-C/5-2
- Cherry Lane (Receptor 9) – Alternatives 45-C/5-2 and 5-3
- Floydsburg Residents (Receptors 3 and 10) – Alternatives 45-C/5-2 and 5-3

For Alternative 45-B/6, the Lake Forest Subdivision, Woodmont Subdivision, Fox Run Subdivision, and Blue Creek Estates have a cost effectiveness factor below 250 and are considered cost effective. These barriers will benefit approximately 136 residents along the proposed alternative. For both Alternatives 45-C/5-2and 45-C/5-3, the Lake Forest Subdivision, Ridge at Old Henry, Fox Run Subdivision, Ashbrook and Clovercroft subdivision, and the residents along Cherry Lane have a cost effectiveness factor below 250. These barriers will

benefit 249 impacted residents along Alternative 45-C/5-2 and 199 impacted residents along Alternative 45-C/5-3

It is important to note that the barriers presented in this document are the results of preliminary study and consideration only. A final decision on noise barrier construction will be made after KYTC has held meetings with affected residents to discuss barriers. After the desire of the majority of affected residents is determined, the KYTC will make a final decision on specific noise measures.

3.3 Aquatic and Terrestrial Ecosystems

3.3.1 Water Quality and Stream Impacts

The proposed project corridor lies within the watershed of Floyd's Fork, a fifth order tributary of Salt River. Within the project corridor, Floyds Fork has an approximate watershed of 48.6 square miles. Other streams within the project corridor are Curry's Fork (a fourth order tributary of Floyds Fork) and Asher's Run (a third order tributary of Curry's Fork). In addition, seven unnamed intermittent tributaries of Floyds Fork and two unnamed intermittent tributaries of Curry's Fork are located within the project corridor. These streams are shown in Figure 11.

Coordination was performed with the Kentucky State Nature Preserve Commission, US Fish and Wildlife Service, Kentucky Department of Fish and Wildlife Resources, and the Kentucky Department of Environmental Protection. Correspondence with these agencies is included in Appendix A. In order to evaluate the conditions of the streams within the project corridor, field surveys were conducted at five stream locations, as shown in Figure 11. These field surveys consisted of water quality testing, habitat analysis, macroinvertebrate sampling, and fish sampling. Water quality parameters were normal for all streams within the project corridor. The field survey of the streams within the project corridor identified 65 macroinvertabrates. The largest numbers of microinertabrates were located in Floyds Fork and Curry's Fork. Result of the survey indicates impairment of the macroinvertabrate community in the Floyds Fork tributary near KY 362, Ashers Run, and Curry's Fork. Fish sampling within the corridor produced a total of 746 individuals and 26 species. Curry's Fork and Floyd's Fork had fairly diverse fish faunas, consisting of 19 and 21 species respectively.

There are no known well head protection programs for public water sources within the proposed project area. There are no known domestic water wells within the proposed construction area. The standard groundwater protection plan, in addition to erosion and sediment control plans, as required by the Kentucky Division of Water and the Kentucky Transportation Cabinet, Division of Environmental Analysis, will be strictly followed.

The number of stream crossings for each alternative is listed in Table 10. Bridges will be required on all crossings of Floyd's Fork, Curry's Fork, and Asher's Run. Culverts will be required for all other intermittent and perennial stream crossings. Culvert crossings involve more instream disturbance than bridges because they place structures and fill material in the stream channel.

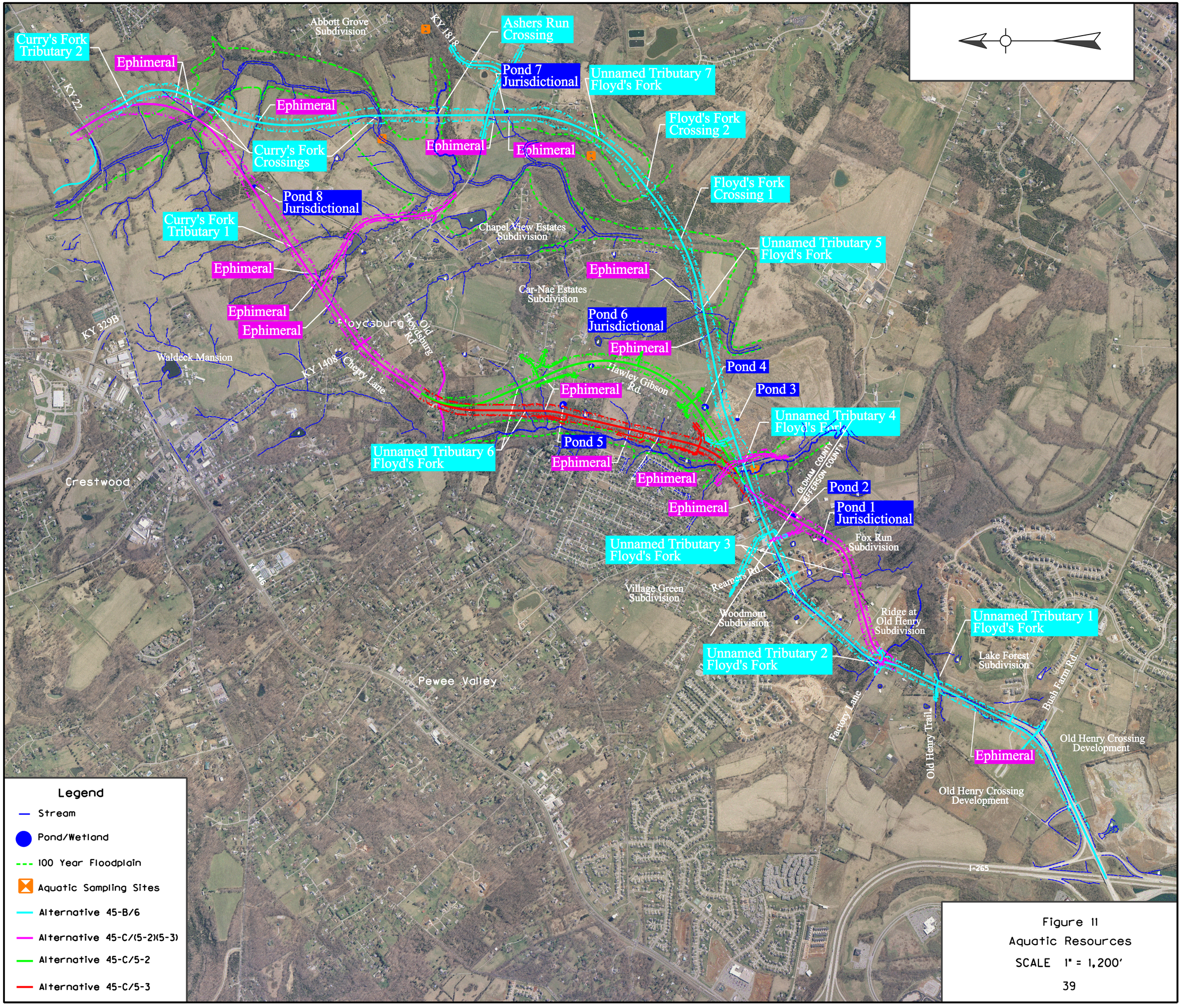

Figure 11

Aquatic Resources

SCALE 1" = 1,200'

Table 10: Stream Crossings

Watershed	Stream	Stream Crossing by Alternative			Proposed Crossing
		45-B/6	**45-C/5-2**	**45-C/5-3**	
Floyd's Fork	Floyds Fork	2	0	0	Bridge
	Unnamed Tributary 1	1	1	1	Culvert
	Unnamed Tributary 2	1	1	1	Culvert
	Unnamed Tributary 3	1	1	1	Culvert
	Unnamed Tributary 4	2	2	2	Culvert
	Unnamed Tributary 5	1	0	0	Culvert
	Unnamed Tributary 6	0	1	1	Culvert
	Unnamed Tributary 7	1	0	0	Culvert
	Ephemeral Tributaries (10)	8	2	4	Culvert
Curry's Fork	Curry's Fork	2	1	1	Bridge
	Unnamed Tributary 1	0	1	1	Culvert
	Unnamed Tributary 2	1	1	1	Culvert
	Ashers Run	1	0	0	Bridge
	Ephemeral Tributaries (6)	3	3	3	Culvert
Total Crossings		24	14	16	
Total Disturbance (feet)		***7,361***	***4,481***	***4,727***	

Bridge crossings of Floyd's Fork, Curry's Fork and Ashers Run will cause minimal aquatic impacts because the streams will be spanned, resulting in no instream habitat loss. Construction activities at these crossings may cause short term sediment impacts, but sediment control structures such as straw bales, silt fences, and erosion mats will be implemented according to the *KYTC Standard Specifications* and should prevent or minimize these impacts. Construction activities and associated erosion will produce short term and long term impacts to the aquatic habitats of the surface streams within the project area. Resident animal and plant communities will respond to subsequent changes in water quality and habitat quality.

Potential direct, indirect and cumulative impacts to project area surface and groundwater include the following:

- During road construction, the potential for sedimentation will increase as sediments are exposed, extracted, and moved. Increased sedimentation can cause reduced stream capacity (flooding) and smothering of aquatic habitat. Because fresh sediment and rock are exposed, turbidity, conductivity, and suspended soil levels may increase.
- After completion of the new roadway, an increase in the amount of impervious surface may contribute to greater and more rapid surface runoff to streams, resulting in increased instream flows and velocities.
- New road surfaces could contribute road salt, oil, antifreeze, and other non point source pollutants to aquatic environments.
- For shaded streams, the removal of steam canopy will cause an increase in average stream temperature during warmer months, resulting in lower concentrations of dissolved oxygen.

In addition, increased sunlight due to more open canopies could promote the establishment of excessive algal growth.

- Removal of riparian vegetation along streams will reduce the number of course woody debris (sticks, leaves) entering the stream systems, resulting in a negative impact on the aquatic community.

3.3.2 Floodplain

According to Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map No. 210185 0175 B for Oldham County, the project area is located in the 100-year flood plain of Floyd's Fork, Curry's Fork, Asher's Run, and an unnamed perennial tributary of Floyd's Fork, as shown in Figure 11. All of the project alternatives will encroach upon the floodplain of the unnamed tributary of Floyds Fork near KY 362. It is anticipated that all alternatives will cross this tributary with a culvert. Alternative 45-B/6 also impacts the floodplain of two additional tributaries of Floyds Fork which will be crossed using culverts. Crossings of Floyds Fork, Curry's Fork and Asher's Run will be bridged through the floodplain for all alternatives Bridge piers will be located in the floodplain but no large fill activities are expected. Exact impacts on floodplains will be determined during final design.

Construction activities in floodplains are regulated by the U.S. Army Corps of Engineers. Federal regulations require the KYTC to avoid or minimize highway encroachments within the 100-year floodplain where possible. During the final design of the project, a detailed hydraulic study will be performed for the recommended alternative. This study will provide detailed analysis of the effects of floodplain encroachments on flood elevations. These analyses will determine the proper design for culverts, pipes, and bridges to ensure flood elevations will have "no net effect" due to highway construction. A "No Rise" certification and coordination with FEMA and the Kentucky Division of Water may be required for this project. A state Floodplain Construction permit may also be required. Cumulative and secondary impacts to the floodplains are expected to be insignificant. Due to the location of the bridge crossings and limited access points, the project is not expected to encourage further development in the floodplains.

Indirect and cumulative impacts of the proposed project on the floodplains include the opening of the corridor to development, particularly at proposed intersections in Oldham County. The project will create an at grade intersection with KY 1408 and KY 22 adjacent to existing floodplains. Development generally occurs along new roadways at these major crossroads. Although development will not likely occur within the floodplain, adjacent development will likely increase surface runoff.

3.3.3 Wetlands

Based on the review of the topographic and National Wetland Inventory (NWI) maps, hydric soil locations, and field surveys performed in 2003, eight ponds/wetlands lie within or are in close proximity to the limits of disturbance of the proposed alternatives. These ponds/ wetlands are shown in Figure 11. These ponds are man made impoundments used as livestock water supplies or recreational fishing lakes. A field survey with personnel from the US Army Corps of Engineers, Louisville District, determined that four of the eight ponds (ponds 1, 6, 7, and 8) were jurisdictional waters. The margins of ponds 1,6, and 7 represented jurisdictional wetlands. These areas are classified as jurisdictional wetlands because they are shallow and contain rooted,

aquatic vegetation. Table 11 identifies the wetland impacts for each alternative. Pond 3 lies just outside the right of way and is not directly impacted. An exact determination of impacts to jurisdictional wetlands will be made by KYTC after final design of the proposed roadway. Based on the below data, approximately 0.12 to 0.95 acres of wetland will be impacted.

Table 11: Wetland Impacts

Pond	USACE Jurisdiction	Total Pond Area (Acres)	Impacts by Alternative (Acres)		
			45-B/6	45-C/5-2	45-C/5-3
1	Yes	0.29	-	0.29 (0.03)	0.29 (0.03)
2	No	0.29	-	0.29	0.29
3	No	0.08	-	-	-
4	No	0.32	-	0.08	-
5	No	0.37	-	-	0.37
6	Yes	0.17	-	0.17	-
7	Yes	0.12	0.12 (0.12)	-	-
8	Yes	0.12	-	0.12 (0.08)	-
Total		1.76	0.12 (0.12)	0.95 (0.11)	0.95 (0.03)

Impacts in parenthesis indicates jurisdictional wetland acres

Every effort will be made to minimize impacts to wetlands. It may be possible to further minimize the impacts by adjusting the proposed alignment, using retaining walls or steeper side slopes, or reducing right of way limits outside of construction limits. Wetland mitigation, if necessary, may be accomplished for this project through the use of KYTC's Nelson County Wetland Mitigation Bank. If it is necessary to fill a wetland, partial or total destruction of the wetland may occur. If a wetland is filled, loss of habitat and changes to drainage patterns will occur. Partial destruction of a wetland may include loss of habitat within and near the fill area. The ponds throughout the corridor provide water quality filtering of surface runoff and sediment storage. The ponds also provide drinking water for numerous animal species. Disturbance or removal of these resources would eliminate these functions. These indirect and cumulative impacts will be minimized utilizing Best Management Practices, including erosion control plans.

3.3.4 Wild and Scenic Rivers

There are no wild and/or scenic rivers or Outstanding Resource Waters, as reported by the Kentucky Department of Environmental Protection's Division of Water (see Appendix A-15), within the project corridor.

3.3.5 Threatened and Endangered Species

Section 7 of the Environmental Species Act (ESA) requires the consultation of the United States Fish and Wildlife Service (USFWS) to ensure that a proposed project is not likely to jeopardize the continued existence of a species that is listed on the federal threatened or endangered species lists or destroy or adversely affect designated critical habitat. Coordination with state agencies was also performed. Agency coordination indicated the potential occurrence of 15 federal and/or state endangered, threatened, or special concern species within the project corridor. Correspondence from the USFWS stated that the federally endangered Indiana bat (*Myotis stoloniferum*), gray bat (*Myotis grisescens*), and running buffalo clover (*Trifolium stoloniferum*) may occur within the project corridor. The Kentucky Department of Fish and Wildlife (KDFWR) had no records of federally threatened or endangered species within the project area.

Kentucky State Natural Preserves Commission (KSNPC) indicated that 17 occurrences of plant and animal species and no occurrences of the exemplary natural communities that are monitored by their agency are known within the project corridor. These occurrences included Allegheny chinkapin (*Castanea pumilia*, KSNPC Threatened), northern fox grape (*Vitis labrusca*, KSNPC Special Concern), elktoe (*Alasmidonta marginata*, KSNPC Threatened), American burying beetle (*Nicrophorus americanus*, US Endangered, KSNPC Historic), trout perch (*Percopsis omiscomaycus*, KSNPC Special Concern), read shinned hawk (*Accipiter striatus*, KNSPC Special Concern), Bachman's sparrow (*Aimophila aestivalis*, KYNPC Endangered), Henslow's sparrow (*Ammordranus henslowii*, KYNPC Endangered), lark sparrow (*Chondestes grammacus*, KSNPC Threatened), savannah sparrow (*Passerculus sandwichensis*, KYNPC Special Concern), Bewick's wren (*Thyromanes bewickii*, KYNPC Special Concern), and barn owl (*Tyto alba*, KSNPC Special Concern).

Based on the field surveys of the project corridor and review of the distributional information for each species, potential impacts are possible for 5 of the 14 species listed above. These species include Indiana bat, sharp-shinned hawk, Henslow's sparrow, Savannah sparrow, and barn owl. Field surveys of the project corridor identified the presence of potential Indiana bat habitat at three sites, shown in Figure 12. These areas contain trees of appropriate size and species to constitute summer roosting and forging habitat for Indian bat. The remaining four species may occur throughout the project corridor in agricultural areas. These areas are composed of a mixture of pasture/hayfield and old field habitats interposed with small forested parcels. Potential habitat disturbance for each alternative is summarized in Table 12.

Table 12: Threatened and Endangered Species Impacts

Species	Status	Impacts by Alternative (Acres)		
		45-B/6	**45-C/5-2**	**45-C/5-3**
Indiana bat	US/KY Endangered	1.05	2.85	5.71
KSNPC Bird Species	KY Endangered KY Special Concern	77.42	77.57	61.3

In June 2003, bat netting was performed at the three identified sites for Indiana Bat habitat. No Indiana bat or gray bat was recovered during the netting. In addition, no potential running buffalo clover habitat was found to have existed within the corridor. Therefore, the project is not likely to adversely affect the federally endangered Indiana bat and gray bat and will have a no effect on running buffalo clover (See Appendix A-8, USFWS correspondence).

Terrestrial habitat within the project corridor consists primarily of pasture/hayfield, row crop, old field, and forest. Figure 8 indicates the habitat for each of the build alternatives. Table 13 shows the impacts to each of these habitats. Limited habitat areas are located along streams and ponds.

Abbott Grove Subdivision

KY 1818

KY 22

PROPOSED ROW

Potential Indiana Bat Habitat

SHELBY COUNTY

Chapel View Estates Subdivision

Blue Creek Estates Subdivision

PROPOSED ROW

PROPOSED ROW

Car-Nae Estates Subdivision

KY 329B

Old Floydsburg Rd.

KY 1408 Cherry Lane

White Ash
Potential State Champion Tree

Hawley Gibson Rd.

Francis Ave.

Potential Indiana Bat Habitat

Clovercroft Subdivision

Ashbook Subdivision

KY 362 (Ash Ave.)

OLDHAM COUNTY
JEFFERSON COUNTY

PROPOSED ROW

Fox Run Subdivision

Potential Indiana Bat Habitat

Reamers Rd.

Village Green Subdivision

Woodmont Subdivision

Ridge at Old Henry Subdivision

PROPOSED ROW

Lake Forest Subdivision

Bush Farm Rd.

Factory Lane

Old Henry Trail

Old Henry Crossing Development

Old Henry Crossing Development

I-265

Crestwood

KY 146

Pewee Valley

Legend

- Presettlement Trees
- Potential Indiana Bat Habitat
- Hayfield/Pasture
- Old Field
- Forest
- Residential
- Row Crop
- Alternative 45-B/6
- Alternative 45-C/(5-2)(5-3)
- Alternative 45-C/5-2
- Alternative 45-C/5-3

Figure 12
Terrestrial Resources
SCALE 1" = 1,200'

Table 13: Terrestrial Habitat Impacts

Terrestrial Habitat / Land Use	Impacts by Alternative (acres)		
Alternative	**45-B/6**	**45-C/5-2**	**45-C/5-3**
Pasture / Hayfield	71.78	71.01	54.75
Forest	25.54	17.24	36.84
Old-Field	3.86	11.18	8.85
Row-crops	5.64	6.56	6.55
Total	**77.42**	**77.57**	**61.3**
Total in Corridor	**100.5**	**103.12**	**81.23**

A potential state champion tree is located within the project corridor. A large white ash (*Fraxinus Americana*) was discovered along a driveway off Hawley Gibson Road. It has an approximate circumference of 17.6 feet and a diameter of 5.6 feet. An initial survey has been made by the Kentucky Department of Forestry and the tree appears to represent a new state champion. Further research is planned by the Kentucky Department of Forestry. The tree currently lies within the disturbance limits of Alternative 45-C/5-2.

The paving and bisecting of any of the above habitats both fragments and eliminates habitat for amphibians, reptiles, birds, and small mammals, causing displacement for some resident animal populations and partitioning of other populations into smaller, more isolated units. Conversion of agricultural land eliminates productive areas for row crops and livestock. Some agricultural land also serves as habitat for a variety of vertebrate species. Conversion of these areas for right of way will displace some resident animal communities. Vertebrate communities that prefer grasslands may return to some right of way areas after construction is completed.

Indirect and cumulative impacts of the proposed project on the terrestrial environment include the opening of the corridor to residential development. This development has the potential to eliminate habitat and also fragment habitat by adding access points along the roadway. Development is already rapidly occurring in Jefferson County and will not change significantly with a new roadway. In Oldham County, the potential for the conversion from agriculture use to residential use will be increased along the new roadway.

3.4 Cultural Resources

In accord with the requirements of Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act, several surveys were undertaken to identify the cultural resources within the project area. Field investigations of the project area included an evaluation of archaeological sites and historic structures.

A National Historic Preservation Act, Section 106 Notice was published in the local newspapers and included in the third newsletter in order to initiate the 106 process and solicit Consulting Parties. The list of Consulting Parties was approved by the Federal Highway Administration in consultation with the Kentucky Heritage Council. Including the State Historic Preservation Office (SHPO), there are a total of 8 Consulting Parties representing local officials and residents. The Cultural Historic Report has been sent to the Consulting Parties for their review. Native American Consultation will be coordinated by KYTC if appropriate.

3.4.1 Historic Structures or Districts

An Area of Potential Effect (APE) for the project was based on the viewshed of the proposed project alternatives. The viewshed is defined as the area visible from the proposed roadway, including proposed access roads. The APE was reviewed by the Federal Highway Administration, SHPO, and the Kentucky Transportation Cabinet. The original APE was based on the initial build alternatives and was revised as new alternatives were developed. The APE was not revised due to alternatives being eliminated and still encompasses the alternatives that impact the Waldeck Farm.

Two properties in the APE are listed on the National Register of Historic Places. The John Ritter House (Ol-218) in Floydsburg was listed in 1984 and Waldeck (Site 21) was listed in 2001. An additional 20 sites were surveyed within the APE. (See Figure 13) One individual site, the Stoess House, Site 10, and the Floydsburg Historic District (Site 15) were determined by the State Historic Preservation Office (SHPO) to be potentially eligible for the National Register of Historic Places (See Appendix A-1). The Floydsburg Historic District includes the previously listed John Ritter House. The proposed alternatives will have no effect on any of the historic structures listed on or eligible for the National Register of Historic Places. Due the determination of no effect, a Memorandum of Agreement with SHPO is not required. No indirect and cumulative impacts to Historic Structures and Districts are anticipated with the proposed project.

3.4.2 Archaeology

An archaeological reconnaissance of the project alternatives was performed in September and October of 2001 and January of 2002. This reconnaissance surveyed the high probability areas of the original project alternatives. Between June 15 and July 1, 2004, a Phase I archaeological survey was completed on the preferred alternative, 45-B/6. The Area of Potential Effect (APE) that was surveyed was the proposed right of way limits of the alternatives. The entire right of way limits for Alternative 45-B/6 was subjected to an intensive pedestrian survey supplemented with shovel probes at 20 meter intervals. Private residences with leveled and landscaped yards were walked and visually inspected, but were not shovel tested. Approximately 24 percent of the project area was highly disturbed by construction or landscaping. Only occasional shovel probes were performed within disturbed areas to confirm the extent of disturbance.

The survey resulted in the discovery of two archaeological sites dating to the historic period (15OL129 and 15JF710), one historic non site locality, and one prehistoric isolated find. Site 15Ol29 was a mid nineteenth century residence, and 15Jf710 was a relatively small scatter of historic material, apparently associated with a middle nineteenth to early twentieth century farm/residence. The non site locality (NSL-1) was a small scatter of historic material, possibly an early twentieth century dump site. The isolated find (IF-1) was the distal end of a large hafted biface. It was not complete enough to determine its age.

Based on the site investigation and analysis of the artifacts found, Site 15Ol129 has been recommended by the State Historic Preservation Officer as potentially eligible for listing in the National Register of Historic Places and will require additional Phase II investigations (See Appendix A-4). The other sites investigated are not eligible for inclusion on the National Register. No cumulative or indirect impacts to archaeological resources are anticipated due to this project.

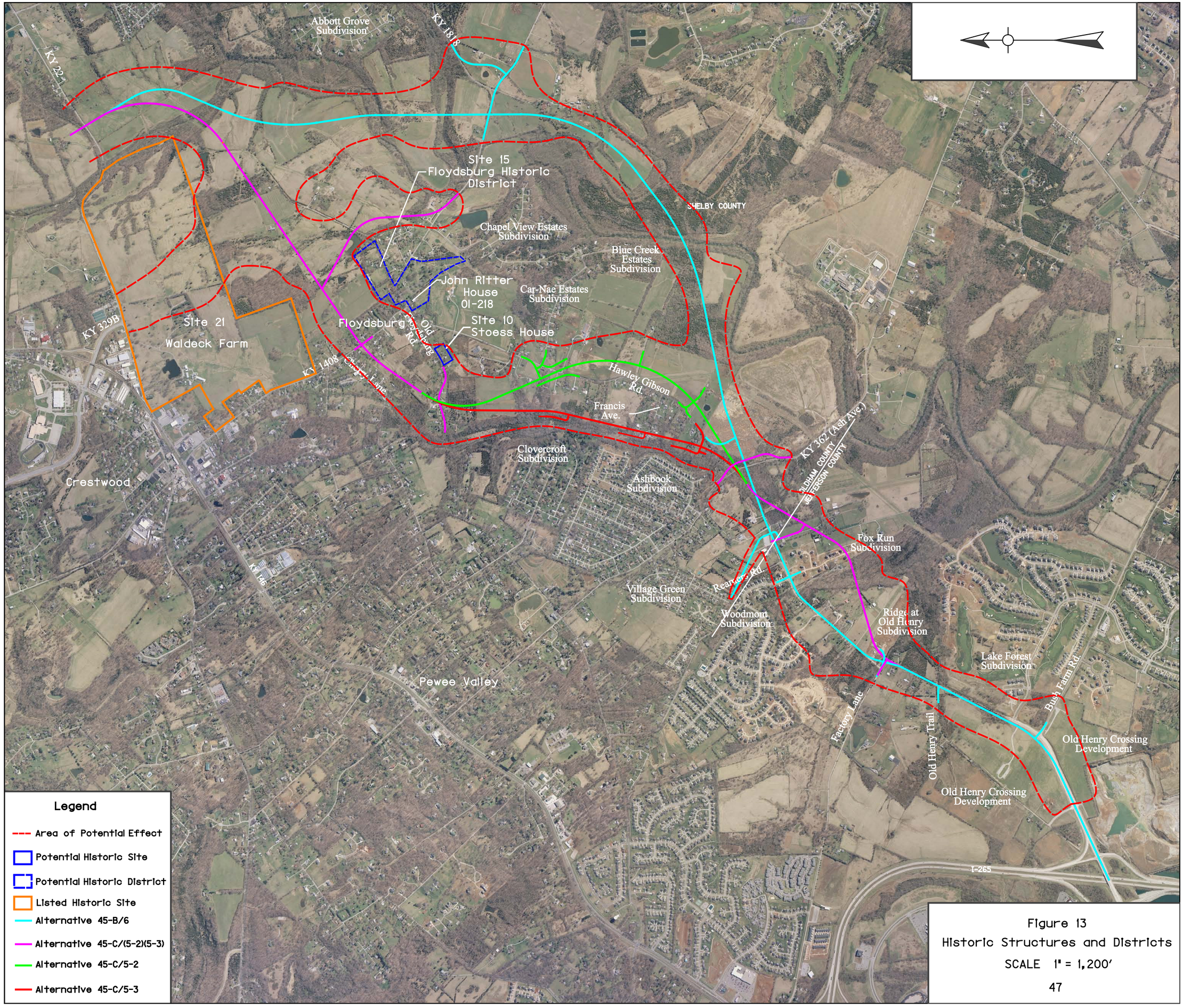

Figure 13
Historic Structures and Districts
SCALE 1" = 1,200'

3.5 Socioeconomic Impacts

3.5.1 Land Use

The project corridor consists of a mixture of urban, residential, and rural land use. Some of the land has recently been developed into residential areas. The communities of Lake Forest, Fox Run, and Woodmont are all newly developed subdivisions along Old Henry Road in the southern portion of the project corridor. In addition, on a site just north of Factory Lane on Old Henry Road, a large, multi-unit residential development is currently under construction. The existing and proposed residential subdivision is shown in Figure 14.

The residential areas found throughout the project corridor have certain zoning laws associated with them in both Jefferson and Oldham Counties. Both the Jefferson County and Oldham County Planning and Zoning Commissions have completed land use plan that considered the impacts of the proposed highway project. The plans provided information, analysis and recommendations to address land use and community design issues associated with the road extension. The Oldham County plan, the *Old Henry Road Study,* was performed in 2000. Jefferson County has also performed a subarea plan to study the land use within the proposed project area. In Jefferson County, the *Old Henry Road Subarea Plan* was adopted by the Jefferson County Fiscal Court in 2000 and incorporated into the *Louisville Urbanized Area Thoroughfare Plan***.** The proposed project is consistent with the land use plans in both counties.

Land use within the Jefferson County has been rapidly changing from rural to residential use and is not expected to change dramatically from these current trends. The conversion of agriculture to residential growth would be expected to continue in Jefferson County even if the project were not built. The Old Henry corridor is one of the few remaining undeveloped corridors in Jefferson County. As new developments have been proposed in Jefferson County, Jefferson County Planning and Zoning has been successful in reserving frontage along existing Old Henry Road in order to accommodate future widening. Alternative 45-B/6 travels along the existing roadway and utilizes this frontage. Jefferson County will continue to reserve frontage along the existing roadway as future developments are proposed. Alternatives 45-C/5-2 and 45-C/5-3 do not utilize the reserved frontage by Jefferson County Planning and Zoning north of Factory Lane.

In the Oldham County portion of the project, land conversion from agriculture to residential has been slowed in the corridor due to lack of infrastructure and access. The population in Oldham County increased 38.8 percent from 1990 to 2000 to a population of 46,178, making it the fifth fastest growing county in the Commonwealth, behind Spencer, Boone, Gallatin, and Grant counties. Table 14 compares population and growth percentages for the state, counties, and communities closest to the project corridor.

Table 14. Population

	2000 Population	1990 Population	% Change
Kentucky	4,041,769	3,685,296	9.7
Jefferson County	693,604	664,937	4.3
Oldham County	46,178	33,263	38.8
Crestwood	1,999	1,435	39.3
Pewee Valley	1,436	1,238	16.0

Source: 2000 U.S. Census

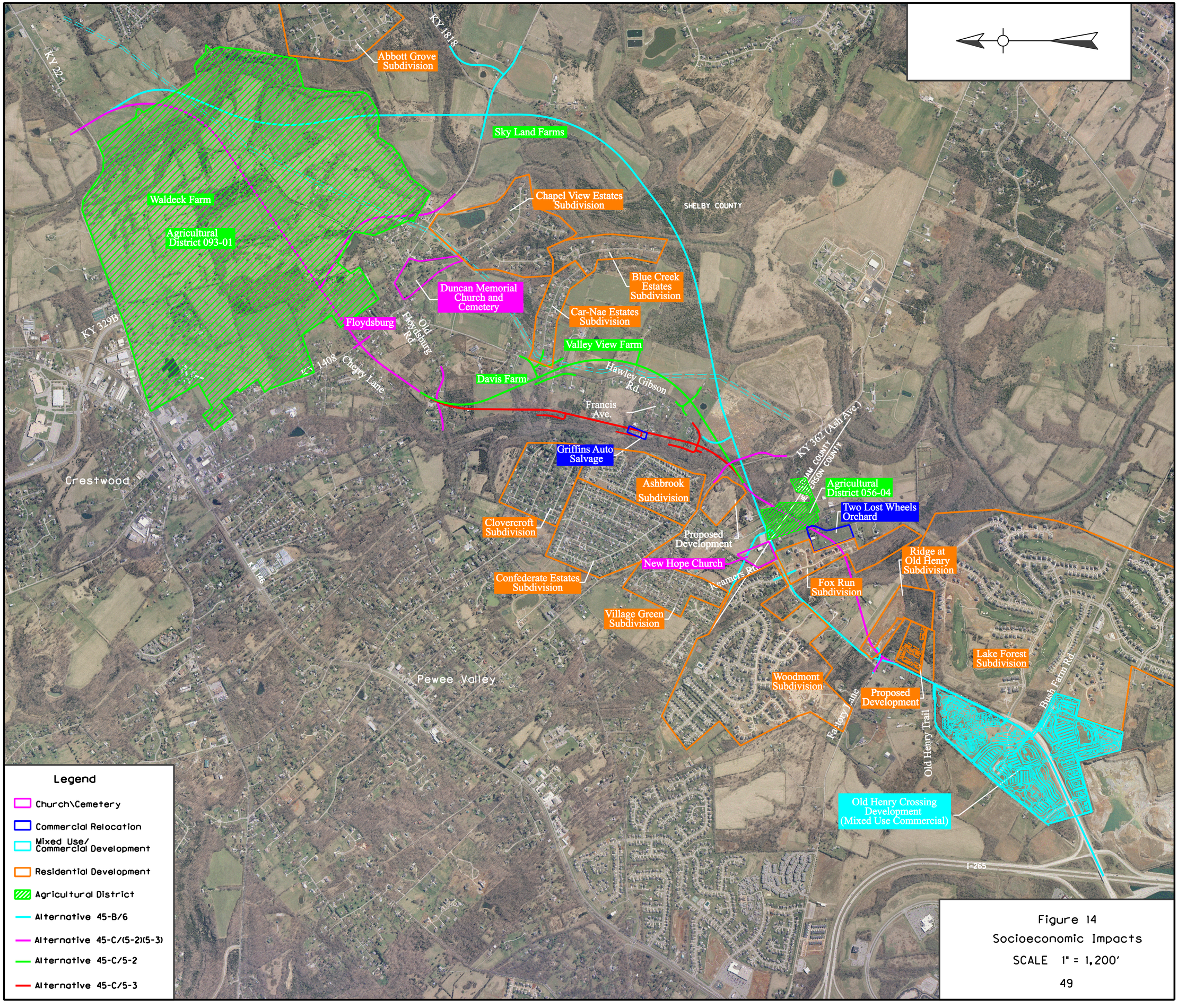

Figure 14
Socioeconomic Impacts
SCALE 1" = 1,200'

Growth in this county is occurring much more rapidly than was previously anticipated in the 1990's. Current population projections estimate growth of nearly 100 percent by 2020 with a population 81,508; by 2030, more than 100,000 persons are projected to live in Oldham County. Such growth will put tremendous pressure on area roads, which were built to accommodate rural communities and light vehicular traffic. With the expected population growth, the project corridor will begin to develop. New subdivisions, such as Chapel View Estates and Abbott Grove have been built within the project corridor in Oldham County in recent years.

With the anticipated growth in Oldham County over the next 20 to 30 years, the proposed project will have no overall indirect or cumulative impacts to project area populations. The project may accelerate land use conversion and promote development sooner along the roadway, particularly with alternatives 45-C/5-2 and 45-C/5-3 in Oldham County. Alternative 45-B/6 has several bridge crossings and borders the floodplain for a significant portion of its length. This will limit access points to the new highway and reduce development along portions of the roadway.

3.5.2 Community Impacts

Neighborhoods/Community Impacts

Several existing and newly developed subdivisions, as well as the community of Floydsburg exist within the project corridor (See Figure 10). Subdivisions in Jefferson County include Lake Forest, Woodmont, the Ridge at Old Henry and Fox Run. Subdivisions in the Oldham County portion include Car-Nae Estates, Confederate Estates, Blue Creek Estates, Ashbrooke, Chapel View Estates and Abbott Grove. The community of Floydsburg is located along KY 1408. Several small clusters of homes also exist along roads in both Jefferson and Oldham Counties.

Impacts to community cohesion are generally associated with effects on these established neighborhood communities and newly developed subdivisions. Such impacts may include a significant reduction in the total number of residences within a neighborhood or dividing an established neighborhood such that one portion is isolated from another. Restricted or altered access to businesses or community centers, isolation of any socio-economic group, or loss of key local business may also constitute a negative impact to community cohesion.

For the subdivisions that already exist in or near the project corridor such as Village Green, Confederate Estates, Woodmont, and Ashbrooke, the proposed road could assist in connecting many of these subdivisions and provide improved access. Village Green currently serves as a cut through from KY 362, Ash Avenue, to Old Henry Road and the interstate. This cut through condition adds significant traffic to Reamers Road. However, the proposed road could disrupt community cohesion for the new communities of Fox Run and the Ridge at Old Henry if the proposed road takes homes in this subdivision. Alternatives 45-C/5-2 and 45-C/5-3 bisect both Fox Run and the Ridge at Old Henry and could disrupt community cohesion that may begin to develop as the subdivision becomes more established.

In Jefferson County, the loss of Two Lost Wheels Orchard located at 3500 Apple Hill Road behind the Fox Run subdivision could constitute a negative impact to community cohesion. Residents in the project area likely visit the orchard to pick apples and grapes seasonally. Alternatives 45-C/5-2 and 45-C/5-3 goes through the orchard dividing the property and acquiring the business owner's home and storage shed. Alternative 45-B/6 will acquire a cluster of five

homes along Old Henry Road. These five homes are adjacent to one another and appear to be an older established community. The community cohesion in this area may suffer if the residents of these five homes are required to relocate.

In Oldham County, Alternatives 45-C/5-2 and 45-C/5-3 may impact community cohesion in Floydsburg. This town was established as a county road crossing. The community has a cemetery, chapel, and daycare facility. The construction of a new four lane highway through Floydsburg will relocate residents in Floydsburg and bisect Cherry Lane from Floydsburg. These relocations will affect the community cohesion of Floydsburg.

In addition, to the impacts to Floydsburg, Alternatives 45-C/5-2 and 45-C/5-3 also affect residents along Hawley Gibson Road and Frances Avenue. There are five houses and mobile homes are clustered near each other on Francis Avenue and the southwestern portion of Hawley-Gibson Road. Three homes on Francis Avenue are located close to one another in a small community of about 15 to 20 houses and mobile homes. A new road relocating residents of these homes and running through this community may disrupt residents' lives, and subsequently community cohesion may suffer at this location.

Two churches are located within the project area. The New Hope Church is located near the Old Henry Road and Reamers Road intersection and Duncan Memorial is located within Floydsburg. Some frontage will be acquired from the New Hope Church with Alternative 45-B/6. This will require impacting approximately 12 parking spots in the front row of parking. The parking spots can be relocated on site and not affect church operations. No other community services such as daycare centers, schools, or recreation areas will be disrupted by this project.

Median age in the project corridor is lower than for the state and counties as a whole. Both Jefferson County and Oldham County has a higher percentage of residents between 18 -64 years of age than the state average of 61.4%. The Jefferson County average is 62.2% and the Oldham County average is 65.6%. However, median age has increased 7.3 percent for Jefferson County and 10.9 percent for Oldham County from 1990 to 2000. This trend is consistent with the state's increase of 8.5 percent for the same period. The project area contains fewer residents under 65 than the average for the state and the urban portion of Jefferson County. The result is that median income is higher in the project corridor. The racial composition of the project corridor has been and continues to be predominantly white.

Households in the project area are dominated by married-couple families, many with children. Single-person households in Oldham County and the census units are approximately half as plentiful as in Kentucky and Jefferson County. Data from the original baseline in 2000 indicated 72.9 percent of households (1990) in Oldham County were married-couple families; this increased to 84.0 percent in 2000 as a result of the substantial single unit residential subdivisions that have been constructed over the decade.

Economic Vitality

In January 2003, Oldham County had an available civilian labor force of 25,561. The labor market area consisting of Oldham County plus the adjoining nearby counties of Trimble, Henry, Shelby, and Jefferson, had an available civilian labor force of 430,714 in January 2003. The 2002 unemployment rate in Oldham County was low at 2.8% compared to the statewide average of 5.6% and 5.1% for the local market area. Oldham County firms employed 12,050 people in 2000. Jefferson County firms employed 438,853 people in 2000.

Outside of the area near the I-265 Interchange, there are no business districts within the proposed corridor. A few businesses are scattered throughout the corridor such as Griffins Auto Salvage along Frances Avenue and the Two Lost Wheels Orchard along Apple Hill Road. There are no planned projects or economic development initiatives within the project corridor. The recommended land use along the corridor is primarily residential, with commercial being confined to the area around the I-265 Interchange. A major mixed use office/commercial development is currently being developed at the I-265 Interchange.

The median household income in Jefferson County in the Old Henry Road corridor is $103,426. This is significantly higher than the Jefferson County average of $39,457 and the statewide median of $33,672. The median income in the Oldham County portion of the project is between $50,336 and $58,879. This is slightly lower than the Oldham County median $63,229. Poverty rates are also correspondingly low.

Commuting Patterns

In 2000, Oldham County had a total of 21,716 residents, of which 7,207 worked and resided in the county. Sixty-six percent of the workers (14,509 residents) commute out of the county for jobs, the majority of them commuting to Jefferson County. In 2000, 12,684 residents (or approximately 61 percent) of Oldham County worked in Jefferson County. Oldham County also provided 6,060 jobs for workers who commuted from outside of Oldham County in 2000. In 2000, the majority of the workers commuting to Oldham County to work came from Jefferson County (22.38 percent) and Henry County (8.94 percent). The large number of resident workers in Oldham County commuting to neighboring Jefferson County is a reflection of Oldham County's strong economic interrelationship to the Louisville metropolitan area. Because of the number of resident workers commuting to jobs outside of the county, Oldham County could be classified as a bedroom community for the Louisville metropolitan area. Those persons in the Jefferson County portion of the project corridor likely exhibit commuting patterns similar to those of their neighbors in Oldham County. It is anticipated that the current commuting patterns for Oldham County and Jefferson County resident workers will continue. The proposed project will help facilitate more efficient commuting patterns in the project area and Oldham County.

Community leaders and residents within the corridor have provided input to the project through the Citizens Advisory Committee and other methods. The Citizens Committee has provided guidance on alternative development and selection, local needs and desires, and roadway features. Cumulative and indirect impacts of the project would most likely include increased development within the corridor.

3.5.3 Relocations and Displacements

The number of housing units in Oldham County increased 38.7 percent from 1990 to 2000. In the Jefferson County portion of the corridor, housing units increased from 962 to 2,689, a growth of nearly 180 percent. As the urbanized boundaries of Louisville move outward, housing developments have converted rural land to subdivisions. A significant amount of residential growth has occurred in the Old Henry corridor since the 2000 Census.

This area of Jefferson County has seen tremendous growth in high-end housing units, but this area has also been historically characterized as a fairly exclusive portion of the county. While median house values in 1999 were $268,100, 1990 median house value was $200,700, an increase in 33.6 percent. This is only slightly higher than the Consumer Price Index increase of 27.5 percent for the same period. With a median construction year of 1995 and 34.1 percent of homes valued from $300,000 up, this further illustrates that this area is seeing a construction boom of expensive homes. Oldham County's homes in the $0-$99,000 price range have decreased from 60.5 percent of the total in 1990 to 20.6 percent in 1999. Oldham County's housing construction is targeting a buyer's market of homes $150,000 and up. The median home value in Oldham County is $158,600. Within the corridor, the median home value in Oldham County ranges from $96,200 to $120,200 with a median construction year of 1977 to 1981.

Residential Relocation Impacts

Relocations for this project are inevitable regardless of the alternative selected. Table 15 compares the acquisition impacts by alternative.

Table 15: Residential Relocations

Alternative	Relocations
45-B/6	7
45-C/5-2	27
45-C/5-3	33

After conducting a field survey and researching realtor listings for Crestwood and Peewee Valley, it was concluded that newly built homes are generally valued at between $150,000 to $350,000; older homes are generally valued at between $75,000 and $200,000. Residential development is occurring at a rapid pace in the project corridor. A shortage of housing priced from $150,000 is not anticipated. The availability of single-family homes priced between $75,000 to $100,000 is not large, and rental units are not plentiful in the area. It is also possible that currently undeveloped land will have been converted to housing by the time of right-of-way acquisition. A Conceptual Stage Relocation Report detailing residential relocation impacts and available housing data was performed for each alternative.

Commercial Relocation Impacts

Two businesses are in the right–of-way limits for the proposed project, shown in Figure 14. The Two Lost Wheels Orchard is within the right of way limits in Jefferson County for Alternatives 45-C/5-2 and 45-C/5-3, and is located at 3500 Apple Hill Road behind the new Fox Run subdivision. The business is a family owned, u-pick orchard. The owners have a farmer's stand for those who are not interested in picking their own apples or grapes and the orchard also offers group tours. The business is open Labor Day weekend through mid to late October. The family

only sells their product at the orchard. If one of the 45-C alternatives is selected as the preferred alternative, the Two-Lost Wheels orchard will not be able to continue operating at this site. The 45-C alternatives runs through the middle of parcel acquiring over 25 percent of the orchard as well as the owner's home and storage shed.

Griffin Auto Salvage is within the right of way limits in Oldham County for Alternative 45-C/5-3, and is located at 6023 Francis Avenue off Hawley-Gibson Road. A sole owner operates the auto salvage yard, which contains old vehicles, scrap metal, auto parts, and tires. According to the owner, the salvage yard was purchased from Marshal's Auto Salvage who had operated at this location since 1939. The salvage yard is currently for sale. If Alternative 45-C/5-3 is selected as the preferred alternative, Griffin Auto Salvage will be unable to continue operating at the existing site. Alternative 45-C/5-3 acquires almost the entire parcel.

In accord with the Uniform Assistance and Real Property Act of 1970 (as amended), a program of relocation assistance and payment is available through the Transportation Cabinet. Policies implemented by the KYTC attempt to ensure that displaced persons receive fair and equitable treatment without discrimination and that the construction of any highway project designed for the benefit of the public will not result in hardship to any individual or group. Payments covering moving costs and supplemental housing and advisory assistance are offered in addition to the

Commonwealth's payment for real property. If comparable housing is unavailable at the time of displacement, relocation payments based on Last Resort Housing may be necessary. Some households that could be relocated are potentially low income and could potentially require last resort housing due to the cost of replacement housing within the corridor. If sufficient lead time is provided, all residents can be relocated into safe and sanitary replacement housing, within their financial means and without regard to race, color, religion, sex, national origin, or handicap.

The two businesses potentially impacted by the project, particularly the Lost Two Wheels Apple Orchard, will be difficult to relocate. The Auto Salvage will be relocated out of the project area due to the lack of industrial zoning in the corridor. The Auto Salvage is not a community resource and will not have a significant impact. The Lost Two Wheels Orchard will be difficult to relocate due to the nature of the business. If it is relocated, the orchard would likely have to replant trees and allow some number of years for the trees to begin fruit production.

Right of way acquisition for the project is currently scheduled to begin in 2008. There are no other known capital projects funded in the area in this timeframe. Conversations with government officials, citizens in the area, and others have indicated no general or long term adverse impacts due to relocations. No cumulative or indirect impacts are anticipated due to relocations either.

3.5.4 Farmland

All alternatives cross what is termed an agricultural district as shown in Figure 14. An agricultural district is formed upon petition of landholders to the county chapter of the Kentucky Soil and Water Conservation Commission (Commission), in this case the Jefferson County and Oldham County Conservation Districts. Requirements to be met before an agricultural district is formed are that (I) the land must be capable of supporting agricultural production, (II) active

farms are viable, (III) the proposed agricultural district has at least 250 contiguous acres, (IV) formation of the agricultural district would be consistent with county development patterns and needs, and (V) the local Conservation District Board has reviewed the petition and recommends to the Commission that an agricultural district be formed. All landowners whose land falls within an agricultural district have the right to have their land assessed by the local Property Valuation Administrator at the land's agricultural use value. Landowners may elect to have their land removed from an agricultural district at any time. The project corridor crosses two agricultural districts. Prime and unique farmland soils can be found scattered throughout the agriculture districts in the project corridor. One, Agricultural District 093-01, is comprised of one parcel, the Waldeck Farm in Oldham County. The other, Agricultural District 056-04, is located off Old Henry Road south of KY 362 where Section 1 crosses the Oldham/Jefferson County line. Four parcels comprise this district. One of the four parcels is contained within the project corridor.

Roughly 67 percent of the land use in Oldham County in 1997, the year of the latest reported census, was classified as agricultural compared to 69 percent in 1992. Land in farms has decreased 16 percent from 84,424 acres in 1992 to 70,535 acres in 1997. There were 392 farms in Oldham County in 1997 averaging 180 acres in size. The number of full time farms decreased 15 percent from 188 farms in 1992 to 160 farms in 1997. The total market value of agricultural products sold in Oldham County was just over $16 million in 1997. Crops sales accounted for 46 percent of the market value, and livestock sales accounted for 54 percent of the market value.

The proposed road will affect five farms within the study area – Sky Lands Farm located east of Hawley Gibson Road, Davis Farm located west of Hawley-Gibson Farm, Waldeck Farm located between Floydsburg and KY 22, Valley View Farm located south of Renada Drive, and Two Lost Wheels Orchard located south of Apple Hill Road. Table 16 lists farms in the project corridor and explains how they will be impacted.

Table 16: Farmland Impacts

Farms	Products	Alternative	Impact
Two Lost Wheels Orchard	Apples and grapes	45-C/5-2 45-C/5-3	Takes 1/4 of the orchard, the home, and the storage shed
Sky Lands Farm	Hay, livestock, and horses	45-B/6	the farm in two, takes home and barn
Valley View Farm	Horses	45-C/5 -3	Takes 1/4 of the farmland
Davis Farm	Hay and possibly row crops	45-C/5 -3	Takes the western portion of farmland
		45-C/5 -3	Divides the farm in two
Waldeck Farm	Hay and livestock	45-C/5-2	Horizontally bisects through farmland, takes large hay barn
		45-C/5 -3	Horizontally bisects through farmland, takes large hay barn
		45-B/6	Vertically bisects eastern portion of farmland

The Land Evaluation and Site Assessment (LESA) scores form AD-1006 are shown in Appendix C. None of the Alternatives received a score greater than 160. The Federal Highway Administration (FWHA) Technical Advisory T 6640.8A states that evaluation of alternatives to avoid farmland impacts is only needed when the LESA score is greater than 160 points, therefore no coordination with the Natural Resources Conservation Service (NRCS). Table 17 shows the approximate number of farmland-use acreage that each of the build alternatives will take.

Table 17: Farmland Acres Acquired

Alternative	Acres Acquired
45-B/6	129.6
45-C/5-2	90.1
45-C/5-3	98.8

Prime and unique farmland is scattered throughout the agricultural districts in the project corridor. All alternatives have the potential to impact some prime and unique farmland located in the agricultural districts. All alternatives cross Agricultural District 093-01 located on the Waldeck Farm. Based on estimated right-of-way limits for the project corridor, approximately 43 acres of farmland in Agricultural District 093-01 will be acquired by Alternatives 45-C/5-2 and 45-C/5-3. Alternative 45-B/6 estimated right-of-way limits acquire approximately 24 acres of farmland in Agricultural District 093-01. Although the alternatives impact portions of the Waldeck Farm, the historic boundary of Waldeck Farm is not impacted. Alternatives 45-C/5-2 and 45-C/5-3 also bisect the Agricultural District more than Alternative 45-B/6, which travels closer to the border of the district. All alternatives cross Agricultural District 056-04. Based on estimated right-of-way limits for the project corridor, four acres of farmland in Agricultural District 056-04 will be acquired by Alternatives 45-C/5-2 and 45-C/5-3 and one acre by Alternative 45-B/6.

Overall, the agricultural impacts are greatest for the 45-C alternatives in the Jefferson County portion of the project and Alternative 45-B/6 in the Oldham County portion of the project. These alignments swing out and away from existing developed land. Other alignments generally follow the route of the existing Old Henry Road and Hawley-Gibson Road. Because these alternatives swing further to the east, the amount of non-urbanized land is greater and subsequently the future development and indirect conversion of agricultural land from this alternative will potentially be greater. The greatest impacts to agricultural districts however, are for Alternatives 45-C/5-2 and Alternative 45-C/5-3 combination. Indirect and cumulative impacts include opening up the area to development and the potential conversion of farmland to residential development.

3.6 Environmental Justice

Specific consideration was given to Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, throughout the evaluation of the alternatives. The purpose of Executive Order 12898 is to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. Social, economic, and environmental impacts were also considered for the community at large. Disproportionately high and adverse human health or environmental effects on minority populations are not anticipated. Residential areas along the project corridor are predominately white. It is possible that some of the relocations may be racial minorities, but

the majority of the residents living in or near the proposed design corridors are white. The income and poverty status of the project corridor indicates that low-income populations are less likely in the project corridor than for other comparative geographic areas. Thus, no direct, indirect, or cumulative environmental justice impacts are expected.

3.7 Pedestrian and Bicycle Facilities

The project corridor does not currently have sidewalks or pedestrian and/or bicycle facilities. As the area continues to convert from rural to suburban land use, particularly in Jefferson County, pedestrian activity in the corridor has increased and will continue to do so. Planned commercial businesses near the I-265 Interchange will attract pedestrians and bicyclists from the subdivisions along Old Henry Road.

The proposed roadway in Jefferson County includes both bicycle lanes on the roadway and sidewalks on both sides of the roadway. This section is consistent with Jefferson County Planning and Zoning Land Development Code guidelines for a major urban arterial. The bicycle lanes and sidewalks will increase the visibility and safety of pedestrians and bicyclists choosing to use the road for these purposes.

Due to the rural nature of the area, there is currently no sidewalk or pedestrian facilities are planned in the Oldham County portion of the project. However, 12-foot wide shoulders are planned for the new route, and these wide shoulders will provide some measure of safety for those who choose to walk or bike there. This project meets the criteria for incorporation of pedestrian and bicycle facilities in a rural area based upon Official Order 101153 of the Secretary of KYTC, *Pedestrian and Bicycle Travel Policy*, signed July 16, 2002. The policy recommends when and where pedestrian and bicycle facilities shall be considered in roadway projects; criteria for rural roadways are:

- Pedestrian or bicycle traffic exists along the current roadway
- Project limits are adjacent to planned or anticipated development
- Existence of a state, regionally, or locally adopted pedestrian or bicycle network policy;
- Gaps in connectivity; and
- Public interest and demand for pedestrian and bicycle facilities.

Incorporating bicycle lanes and wide paved shoulders into the proposed new roadway meets KYTC's requirements for providing access to pedestrians and bicyclists. There are no indirect or cumulative impacts associated with bicycle and pedestrian facilities.

3.8 UST/Hazardous Materials

The construction of a new facility could potentially disturb existing hazardous material sites. Discovery of a hazardous material site during right of way acquisition or construction could delay the project until a potentially lengthy detailed evaluation of the site is completed. In order to identify or verify potential hazardous sites, a *Hazardous Waste and Underground Storage Tank Preliminary Assessment* was performed in 2000 and updated in 2003. A total of seven sites within or adjacent to the proposed right of way were identified as reported or potential hazardous material sites. The location of the sites is shown in Figure 15. A summary of information for each suspect site is presented in Table 18.

Table 18: Hazardous Material Concerns

Parcel Number	Owner	Location	Site Description
45	Stephen Sauter / Paul Schwartz	Located along existing Old Henry Road past Reamers Road	Diesel Above Ground Storage Tank (AST). Possibly affected by Alternatives 45-B/6
51	Red Penn Landfill	Located along east side of Hawley Gibson near Hawley Gibson and KY 362 intersection	Hazardous Waste Landfill / Superfund Site. Affected by all Alternatives
52	Donald Puckett	Located across from Red Penn Landfill on west side of Hawley Gibson Road	Buries Drums from Hazardous Waste Landfill. Affected by Alternative 45-C/5-3
53	Fred Northup	Located adjacent to Red Penn landfill on north side	Adjoining property and once owned property of Hazardous Waste Landfill. Affected by Alternative 45-B/6
54	John Zaring	Located across from Red Penn Landfill on west side of Hawley Gibson Road	Drums Dumped from Hazardous Waste Landfill. Affected by Alternative 45-C/5-3
55	Sky Land Farms	Located on east side of Hawley Gibson Road and north of KY 1408	Underground Storage Tank (UST). Affected by Alternative 45-B/6
63	Griffin Auto Salvage	Located at the end of Francis Ave. off of Hawley Gibson Road.	Auto Salvage Yard. Affected by Alternative 45-C/5-3.

Due to concerns over the hazardous material property, especially the Red Penn Landfill and adjoining parcels, and their potential impacts to the proposed alternatives, Phase II hazardous materials investigation was performed on all of the hazardous material sites within the estimated right of way or the corridor.

The Red Penn Landfill is a designated Superfund site that contains approximately 13,000 drums of paint and copper waste, located in the area of the landfill known as Tract 2 and Tract 3, located in the eastern portion of the landfill near Floyd's Fork. All of the proposed alternatives cross the landfill in the section known as Tract 1, located at the western portion of the landfill near Hawley Gibson Road. The area that contains the hazardous drums has been capped. The borrow material used for the capping process was removed from Tract 1. The capping process removed all of the dirt located in Tract 1, leaving the rock exposed and no hazardous materials. All proposed roadway alternatives will place additional fill for most of this parcel.

Abbott Grove Subdivision
KY 1818
KY 22
Parcel 55
SHELBY COUNTY
Chapel View Estates Subdivision
Blue Creek Estates Subdivision
Car-Nae Estates Subdivision
Floyasburg
Old Floydsburg Rd
KY 329B
Waldeck Mansion
KY 1408
Cherry Lane
Parcel 53
Tract 3
Tract 2
Hawley Gibson Rd
Parcel 51
Francis Lane
Tract 1
Parcel 63
KY 362 (Ash Ave.)
OLDHAM COUNTY
JEFFERSON COUNTY
Parcel 54
Parcel 52
Ashbook Subdivision
Crestwood
Site 45
Fox Run Subdivision
KY 146
Reamers Rd
Village Green Subdivision
Woodmont Subdivision
Ridge at Old Henry Subdivision
Lake Forest Subdivision
Bush Farm Rd
Old Henry Crossing Development
Factory Lane
Old Henry Trail
Old Henry Crossing Development
Pewee Valley
I-265

Legend

- Property Lines
- Further Action Recommended
- Hazardous Materials Concerns
- Alternative 45-B/6
- Alternative 45-C/(5-2)(5-3)
- Alternative 45-C/5-2
- Alternative 45-C/5-3

Figure 15
Hazardous Materials Concerns
SCALE 1" = 1,200'

The Phase II investigation of the other hazardous materials properties indicated further action at three of the parcels if they are to be affected by right of way. Parcel 52, Donald Puckett property, is recommended for soil excavation to remove contaminated soil associated with the Red Penn landfill. Alternative 45-C/5-3 is located in a cut section through this parcel. The proposed roadway Parcel 55, Sky Land Farms, contains an underground storage tank that will have to be removed with Alternative 45-B/6. No contaminants associated with heating oil were detected from soil samples taken in the vicinity of the tank. Parcel 63, Griffin Auto Salvage, is used as an auto salvage yard and exhibits significant surface soil staining. These areas of contamination are recommended for excavation and removal if they are to be included in the right of way. Alternative 45-C/5-3 is located in both a cut section and fill section through this parcel.

3.9 Visual Impacts

The project corridor does not contain any vistas or visually sensitive areas, although the countryside around Crestwood is visually pleasing. Subsequently, the proposed project does not interfere with any viewshed of any areas of recognized scenic beauty, parks and/or recreational areas, or historic and/or culturally important resources.

In the Jefferson County portion of the project, the alternatives will not greatly impact the aesthetic and scenic values of the project corridor because these alternatives generally follow the route of the existing Old Henry Road. The project area is also rapidly changing from a rural landscape to suburban, affecting the existing visual quality. In Oldham County, Alternatives 45-C/5-2 and 45-C/5-3 will have some visual impacts. These Alternatives diverge slightly from the existing Hawley-Gibson Road, but are still close to existing developed land. The viewshed for some of the residents in the more rural areas of the project corridor will change. These residents will now see a road crossing farmland or undeveloped land where they did not previously. Because Alternative 45-B/6 swings further to the east than other alternatives, the amount of non-urbanized land is greater and subsequently the future development of this route will create an inevitable aesthetic visual impact. The view of the proposed road from the few homes in the rural area surrounding Alternative 45-B/6 will create a visual impact for residents of the project corridor.

The proposed roadway will be designed to include aesthetic features. Grass medians and utility strips will be used to lessen the visual impact. In Oldham County with Alternative 45-B/6, grass shoulders may also be considered in the design phase of project. Due to such features and the existing amount of development present, cumulative and indirect visual impacts are expected to be minimal; however, this project would not affect the current landscape negatively.

3.10 Impacts of Construction Activities.

Construction activities for the proposed project would have temporary air, noise, water quality, and traffic flow impacts for travelers crossing through the project area on existing roads. The air quality impact would be temporary and would primarily be in the form of emissions from diesel-powered construction equipment and dust from exposed earth. Noise and vibration impacts would be from the heavy equipment movement and construction activities such as pile driving and vibratory compaction of embankments.

Expected short term impacts to surface streams from culvert placement include the disturbance of streambottom and riparian habitat, and temporary increases in turbidity, dissolved solids, nutrients, settable solids, and suspended solids due to erosion from construction activities. Erosion and siltation during construction will also eliminate or displace aquatic fauna whose foraging, reproduction, or locomotion may critically hindered by siltation.

Maintenance of traffic and sequence of construction would be planned and scheduled to minimize traffic delays throughout the project. Signs would be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. The local news media would be notified in advance of road closings and other construction related activities that could excessively inconvenience the community so that motorists can plan travel routes in advance. Access to all properties would be maintained to the extent practical through controlled construction scheduling. Traffic delays would be controlled to the extent possible where many construction operations are in progress at the same time. The contractor would be required to maintain one lane in each direction at all times or provide detour routing and to comply with the Best Management Practices.

All streets that currently have access to Old Henry Road will maintain access to Old Henry Road either through direct access of through frontage roads. Temporary detour routes may be utilized during some phases of construction where the new roadway is constructed utilizing existing roadways in Jefferson County. In Oldham County, all of the alternatives are off of existing roadways will primarily interfere with traffic only at existing road crossings. Traffic patterns in the corridor will be altered once the new roadway is constructed. Traffic will be consolidated to the new roadway and travel less on the existing roads such as Hawley Gibson Road. The new roadway will become the destination for much of the local traffic traveling to and from Crestwood and the interstate, rather than the existing roads.

Sources of additional fill, which will not be available from excavation, will come from one or more borrow sites that may be located within and adjacent to the project area. Any borrow site which might be considered for the proposed project will be surveyed for archaeological resources, and other regulated resources and coordinated and cleared with the appropriate resource agencies. The location and use of all borrow and waste sites will follow the requirements and specifications as set forth in the KYTC *Standard Specifications for Road and Bridge Construction.*

4.0 MITIGATION MEASURES

4.1 Noise Mitigation

All of the build alternatives have receptor sites which qualify for noise barrier construction, both in terms of noise reduction and cost effectiveness. Additional coordination with the affected residents and business owners will be undertaken before further implementation of barrier construction. If, after approval of this Environmental Assessment, a build alternative is selected for further implementation, the KYTC will hold meetings with those specific property owners to discuss noise barriers. After the desires of affected persons are determined, the KYTC will make a final decision about the construction of specific noise barriers.

4.2 Streams and Aquatic Ecosystems

Stream crossings for the proposed project area are anticipated to require an Individual Section 404 Permit issued by the US Army Corps of Engineers (USACE) and a Section 401 water quality certification from the Kentucky Department of Water (KDOW). Individual USACE permits are anticipated for bridges and culvert impacts that are longer than 500 feet. Impacts of more than 200 linear feet on streams with watersheds greater than 250 acres will require Section 401 water quality certifications. Compensatory mitigation is anticipated for all permanent stream losses greater than 200 feet on ephemeral streams.

The KYTC will follow the requirements of Section 212 and 213 in the *Kentucky Department of Highways Standard Specifications* and employ Best Management Practices (BMP) to protect surface waters. Erosion control plans will be provided during the design phase. These plans will identify the use of such devices as silt checks, silt traps, silt fences, diversion channels, and sedimentation basins.

The Kentucky State Nature Preserves Commission recommended that a written erosion control plan be developed for all stream crossings. The plan should include stringent erosion control methods (i.e., straw bales, silt fences, and erosion mats, immediate seeding and mulching of disturbed area) that are placed in a staggered manner to provide several stages of control. All erosion control measures should be monitored periodically to ensure that they are functioning as planned.

As required for construction activities disturbing approximately 2 or more hectares (5 or more acres), a Notice of Intent for coverage under a KPDES general permit number KYR100000 for storm water point source, construction, will be filed with the Kentucky Division of Water. The BMP plan set forth in Part IV of this general KDOW permit will be implemented to minimize potential impacts.

4.3 Wetlands

The total amount of jurisdictional wetland that will be impacted will be determined after final project plans become available. A Section 404 Permit will be required prior to placement of fill material in the wetland. An appropriate mitigation plan to compensate for unavoidable wetland impacts will be required if the impact exceeds 0.1 acre. Wetland mitigation, if required, must follow Section 404 guidelines and are subject to USACE approval.

4.4 Endangered, Threatened, and Special Concern Species

A biological assessment will be required to meet the requirements of Section 7 of the Endangered Species Act (ESA) for impacts to Indiana bat unless removal of trees with a diameter at breast height of 6 inches or greater can be restricted to a period of October 15th to march 31st. The US Fish and Wildlife Service has consulted that if this recommendation is strictly followed, then the project is not likely to adversely affect the Indiana bat. Further Section 7 coordination with the US Fish and Wildlife Service will be conducted by KYTC's Division of Environmental Analysis, if one of the build alternatives is chosen for construction, to determine if conditions have changed within the corridor.

Pursuant to Executive Order Number 13112 of February 1999, FHWA's Guidance on Invasive Plant Species will be followed in order to prevent the introduction of and control the spread of invasive plant species on highway right-of-way. Reseeding of right of ways will be done using native species of grasses.

4.5 Archaeological Resources

One potential archaeological site, 15OL129, will require Phase II archaeological testing (See Appendix A-4). Upon approval for access to this site and prior to the approval of the final environmental documentation, the KYTC Division of Environmental Analysis will conduct the necessary field studies and report the results of those investigations to the State Historical Preservation Officer for review and comment. Mitigation measures will be determined at this time.

4.6 Relocation Impacts Mitigation

All alternatives will require residential relocations. Property owner's homes will be acquired under the guidelines set forth by KYTC's Division of Right of Way and Utilities. The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Policies Act of 1970, as amended, and relocation resources are available to all relocated residences without discrimination, in compliance with Title IV of the Civil Rights Act of 1964 and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*. Agencies available to assist with housing or loan issues include:

- United States Department of Agriculture
- HUD-Housing Counseling for Homebuyers and Renters
- Social Security Administration
- National Housing Conference
- Kentucky Housing Corporation

In the event that Last Resort Housing becomes necessary, such may be implemented in a number of ways, including (but not limited to)

- Rental assistance subsidy;
- Construction of a new replacement dwelling;
- Relocation and (if necessary) rehabilitation of a dwelling; and
- Change in status of the displaced household from tenant to homeowner when it is more cost effective to do so.

For all residents, sufficient lead time, 12-18 months, should be given in order that residents may have ample opportunity to relocate to a suitable replacement property with the least amount of disruption possible. Property owners will be compensated for acreage and outbuildings acquired, and road access to remaining parcels will be ensured. Effects to farmland will be mitigated by ensuring suitable road access to farmland, by compensating for loss of farmable land, and by compensating for any acquired barns, outbuildings, and fences.

If it is determined that Two Lost Wheels Orchard or Griffin Auto Salvage must be acquired in full or in part for the road project, acquisition and compensation to the business owner will be carried out under the policies and procedures of KYTC's Division of Right-of Way and Utilities and in accordance with the Uniform Relocation Assistance Program and Real Properties Policies Act of 1970, as amended. If the business must be relocated, the owner will receive the current and continuing information on the availability, purchase price, rental cost, and comparable and suitable commercial properties, and the location of these properties. KYTC will also provide the business owner with information concerning federal and state programs (such as the Small Business Administration) that provide loans and assistance to displaced business owners.

4.7 Hazardous Materials/Underground Storage Tank Sites

The sites recommended for soil excavation and/or storage tank removal will be mitigated during the right of way phase of the project is they are impacted. This mitigation will be coordinated by the Kentucky Transportation Cabinet in consultation with FHWA. The proposed project will not be advertised for construction until contamination clearances are obtained.

4.8 Mitigation Measures During Construction

Dust and other air pollutants should be controlled to the greatest extent practical, especially in the vicinity of environmentally sensitive area, such as residential areas. Air pollution associated with the creation of airborne particles would be effectively controlled through the use of watering or the application of calcium chloride in accordance with the KYTC's *Standard Specification on Road and Bridge Construction (Standard Specifications),* as directed by the KYTC project manager.

Every effort should be made to minimize impacts to local citizens and properties throughout the construction period.

The effects of construction disturbances should be minimized and all disturbed areas shall be properly dressed and seeded to blend in with the environment.

5.0 COMMENTS and COORDINATION

The KYTC has coordinated the project study area with many local, state and federal agencies which have varying degrees of jurisdiction and expertise concerning the area's natural resources and the socioeconomic outcomes of building a new highway. Correspondence from these agencies is included in Appendix A.

5.1 Early Public Involvement

The Old Henry Road / Crestwood Connector Project has been guided through an extensive public involvement program. This has been a major component of the coordination process. The public has had considerable influence on the development and refinement of alternative alignments and their potential impacts. The public involvement program has included several approaches including:

- Citizens Advisory Committee
- Public Information Meetings
- Project Newsletters
- Newspaper articles
- Website

This approach has utilized a mix of techniques to assure that the public would be involved in the project development process, distribute information, and create a two way dialogue between the project team and local officials and citizens.

Citizens Advisory Committee

This project has been guided by a Citizens Advisory Committee. The Citizens Advisory Committee was selected by the County Judge Executives for Jefferson and Oldham Counties in March 1999. The Committee consists of local politicians, community leaders, and residents within the project corridor. The public involvement element of this project has been designed to maximize public involvement and understanding of the project, especially as it relates to project purpose and design considerations.

To date, there have been ten meetings of the Citizens Advisory Committee. The following illustrates the dates and topics discussed at those meeting:

- **March 30, 1999** — **Meeting No. 1**
  Role of Advisory Committee, Project Purpose and Need, and Existing Conditions
- **April 13, 1999** — **Meeting No. 2**
  Design Standards, Design Flexibility, and Functional Classification
- **April 27, 1999** — **Meeting No. 3**
  Identification of possible alignment alternatives and community issues
- **May 25, 1999** — **Meeting No. 4**
  Several adjustments were made in the alignment alternatives. Public meeting information package was determined.

- **July 13, 1999** **Meeting No. 5**
  Reviewed public comments and reduced the number of possible alignments to three (3).
- **May 16, 2000** **Meeting No. 6**
  Presented a summary of the information for the public meeting and results of environmental baselines.
- **September 26, 2000** **Meeting No. 7**
  Reviewed the comments gathered from the public meeting and the additional environmental/ engineering information. Identified an Advisory Committee preferred alternative for consideration by the KYTC
- **September 18, 2001** **Meeting No. 8**
  Discussed Avoidance Alternative #5 and #6.
- **June 19, 2003** **Meeting No. 9**
  Discussed new alternatives in Jefferson County and upcoming public meeting
- **November 24, 2004** **Meeting No. 10**
  Discussed public meeting results. Polled the committee on various issues and alternative choices.

All of the Advisory Committee meetings were open to the public. Approximately 20 of 30 Committee Members were present at each meeting as well as approximately 50 visitors. As many as 80 visitors attended some of the meetings.

Public Information Meetings

Four separate public information meetings have been held to date for this project. Public meetings #3 and #4 were held at separate locations but the same information was presented. Listed below are the dates of the public meetings.

- **June 22, 1999** **Public Meeting #1 – South Oldham High School**
  Approximately 220 people attended the first public meeting and 61 official comments were recorded. Information presented included the Citizens Advisory Committee lines.

- **July 20, 2000** **Public Meeting #2 – South Oldham High School**
  Approximately 175 people attended the public meeting. A fifteen page handout was given out at the public meeting explaining the project history, the project alignments, and the preliminary finings of the environmental assessment as well as other information important to the project. A questionnaire was also included as part of the handout. The questionnaire included questions concerning which alignment was preferred and why, what type of bicycle facility was preferred, and what are your major concerns with the project. A total of 172 questionnaires were returned, most coming from within the project area.

- **August 28, 2003** **Public Meeting #3 – Eastern High School**
- **September 4, 2003** **Public Meeting #4 – South Oldham High School**
  190 people attended the 3rd public meeting held for the Jefferson County section of the project. 171 people attending the 4th public meeting held for the Oldham County section. A total of 226 written comments were received from both meetings. Information on the new alignments developed for both Oldham County and Jefferson County was presented.

Project Newsletters

Three project newsletters have been mailed out throughout the course f the project. The project mailing list has grown to approximately 600. The dates of the three newsletters are listed below:

- **January, 2000** **Newsletter No. 1**
  Identified the three selected alignments for public information
- **April, 2000** **Newsletter No. 2**
  Presented a summary of the environmental findings to date and presented more detailed alignments.
- **November, 2000** **Newsletter No. 3**
  Presented results of Public Meeting #2 and Citizens Advisory Meeting indicating their preference for alignments.
- **July 2004** **Newsletter No. 4**
  Presented preliminary selected route and presented the results of the 2003 public meetings and Citizens Advisory Committee meeting.

Other Public Outreach

Photomontages – To help the public visualize the proposed project, photomontages were created showing what a proposed roadway might look like. An aerial video following the proposed alternatives with a band displaying the limits of the alternatives was also made. The photomontages and video were displayed at the South Oldham Public Library prior to the seventh Advisory Committee meeting. The photomontages and video was also displayed at the Advisory Committee meeting. Approximately 50 people viewed the displays at the library.

Website – A project website, www.kytc.state.ky.us/d5/oldhenry.asp, was established in 2003 to provide the public with a location to view the project history and other public information.

Newspaper Articles – The project development process has been closely followed by both the *Courier Journal* in Louisville and the *Oldham Era* in Oldham County. At least 10 articles concerning the project have appeared in the *Courier Journal* between 2000 and 2004.

5.2 Public Hearing

A Public Hearing will be held upon completion and distribution of the Draft Environmental Assessment. The hearing will provide the public an opportunity to comment on proposed document. The results of the public hearing will be incorporated into the final document.

6.0 4(f) and PROGRAMMATIC 4(f)

There are no known publicly owned parks, recreation areas or wildlife and waterfowl refuges within the proposed project study area. Therefore, no Section 4(f) or Section 6(f) resource of this type would be affected by any of the proposed alternatives.

There are properties listed or considered eligible for listing on the National Register for Historic Places in the project corridor. However, none of the proposed build alternatives impact these properties. Therefore, no Section 4(f) Statement will be required for this project.

7.0 REFERENCES

1. Advanced Planning Study, KY 329 From I-265 to Crestwood, by Bernardin, Lochmuller, and Associates, June 1998.

2. Old Henry Road Subarea Plan, HNTB Corporation, May 2000.

3. Oldham County Major Thoroughfare Plan, Wilbur Smith Associates, December 2003.

4. Analysis of Traffic Crash Data in Kentucky, 1999 – 2004, Kentucky Transportation Research Center, 2004

5. KY 22/Old Henry Road – Crestwood Connector Subarea Model, Jordon, Jones, and Goulding, February 2003.

6. Old Henry Road Study, Old Henry Land Use, Oldham County Kentucky.

7. Air Quality Baseline Assessment Addendum, Third Rock Consultants, October 30, 2003.

8. Traffic Noise Baseline Assessment Report, Third Rock Consultants, December 5, 2003.

9. Supplement to Traffic Noise Baseline Assessment Report, Third Rock Consultants, July 22, 2004.

10. Aquatic and Terrestrial Baseline Assessment Report, Third Rock Consultants, June 26, 2003.

11. A Cultural Resource Survey For Old Henry Road/Crestwood Bypass in Jefferson and Oldham Counties, H. Powell and Company, Inc., January 2004.

12. An Archaeological Reconnaissance Survey of the Proposed Old Henry Road – Crestwood Connector in Jefferson, Oldham, and Shelby Counties, Kentucky, Cultural Resource Analysts, March 15, 2002.

13. An Archaeological Reconnaissance Survey of the Recommended Alternate of the Proposed Crestwood Connector in Jefferson, Oldham, and Shelby Counties, Kentucky, Cultural Resource Analysts, November 2004.

14. Socioeconomic Baseline Assessment Addendum, Third Rock Consultants, June 19, 2003

15. UST/Hazardous Materials Baseline Assessment Addendum, Third Rock Consultants, May 29, 2003